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Original Articles

ACUTE DIVERTICULITIS OF THE SIGMOID, WITH OPERATION BEFORE RUPTURE.*

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In an earlier paper[1] I reported the histories of six patients operated on for intra-abdominal suppuration. In each case I believed the infection to have been caused by inflammation of an acquired diverticulum of the left colon.

In two of these cases I was able at operation to demonstrate a gangrenous rupture of the diverticulum of the sigmoid, in each of which an oval concretion was found which had acted as a predisposing cause of the infection.

Since the publication of that paper one of the patients reported, in whose case an acute diverticulitis was demonstrated, experienced a second attack and was successfully operated on by my assistant, Dr. Carleton P. Flint.

As this is the only recorded instance in which an individual has recovered from two operations for this condition, and as it is the first case of acute diverticulitis of the colon in which diagnosis has been made and operation performed before rupture had taken place, I felt that it was of sufficient interest to warrant my presenting it.

Patient.—This was a man 45 years of age. He had always enjoyed good health; had never suffered from digestive disturbances, suggesting appendicitis, gallstone colic, or peritonitis.

First Attack.—In August, 1902, while at dinner he was suddenly seized with an attack of abdominal pain, nausea and faintness, which necessitated his leaving the table and retiring to his room. The attack soon passed off and he was able to join his friends later in the evening. The following night proved a restless one, as he had more or less constant pain in the lower portion of the abdomen, which prevented sleep, and at times was accompanied by nausea and general bodily weakness. The following day he continued to feel badly, but kept up and about for the reason that he was a guest at a country house, and did not wish to inconvenience his host. Later in the day he went for a drive and suffered acutely from the jolting of the vehicle. In the evening he was obliged to call a physician, who, after examination, pronounced the case one of colitis. He returned to the city the following day, and as the symptoms continued, he remained in bed. During five days he continued to suffer with pain in the lower left quadrant of the abdomen, fever, and general malaise.

Examination.—When first seen by me the temperature was 103; pulse, 110; leucocytes, 17,000. There was marked rigidity of the left rectus muscle and a tender mass in the iliac fossa.

Operation.—He was immediately removed to the Roosevelt Hospital, and under ether anesthesia, an incision was made over the most prominent portion of the tumor. After dividing the tissues of the abdominal wall, a large abscess cavity was entered, which contained about 120 c.c. of foul pus, and an oblong, fecal concretion. On washing out the abscess cavity a small ulceration was seen in the wall of the sigmoid, through which escaped a small amount of fecal matter. The cavity was packed with sterile gauze, the wound partly united, and a dressing applied.

Course of the First Operation.—After operation the temperature and pulse rapidly declined to the normal, the pain ceased, and the appetite returned. The discharge from the abscess cavity gradually diminished, until a cathartic was administered on the fourth or fifth day. This gave rise to a very abundant fecal discharge, which continued for several days. It gradually diminished after this period, and the sinus finally closed in about six weeks from the time of operation. The patient remained in perfect health for a period of five years and four months.

Second Attack.—In January of this year he experienced an acute pain in the abdomen, accompanied by nausea and general malaise. The pain at first was more or less generalized over the entire abdomen, but later became localized in the left iliac region, and was so similar to his previous attack as to at once suggest to the patient's mind a repetition of his former illness. The temperature was moderately elevated, and the pulse accelerated. As I was unable on account of illness to respond to his summons, I asked Dr. Flint to see him.

Second Examination.—At the time of Dr. Flint's first visit the pulse was 80; temperature, 101; leucocytes, 15,800; 80 per cent. polynuclears. The abdomen was not distended. On palpation there was felt a well marked muscular rigidity in the left inguinal and lumbar regions, more particularly to the outer side of the left rectus muscles. This region was sensitive to the touch, the point of greatest tenderness being midway between the anterior superior spine of the ilium and the umbilicus. On deeper palpation a distinct mass could be felt about the size of a small orange, near the anterior spine. This mass was exquisitely sensitive to the touch, and seemed to lie directly beneath the scar of the old operation. Examination of the lungs and heart was negative. The free border of the liver could be palpated about one inch below the costal margin. The spleen was not felt. There was no costovertebral tenderness. The urine was turbid, acid, 1031, contained no albumin, sugar, pus or blood.

An ice-bag was placed over the tender area and the patient passed a restless night. On the following morning the temperature was 100; pulse, 82; tenderness and muscular rigidity about the same. There was, however, rather more spontaneous pain, which was of an aching character. Later in the day the temperature rose to 102.5; the pulse-rate was increased, and the patient complained of more pain and tenderness. On examination the mass seemed somewhat larger, but this was difficult to appreciate on account of the fact that the muscular rigidity was considerably increased, and now involved the lower two-thirds of the rectus muscle. As it was evident that the condition was a progressive one, Dr. Flint made the diagnosis of acute diverticulitis, and ordered the patient's removal to the Roosevelt Hospital for operation.

Second Operation.—After the usual preparation, under ether anesthesia, an incision was made directly over the mass, which

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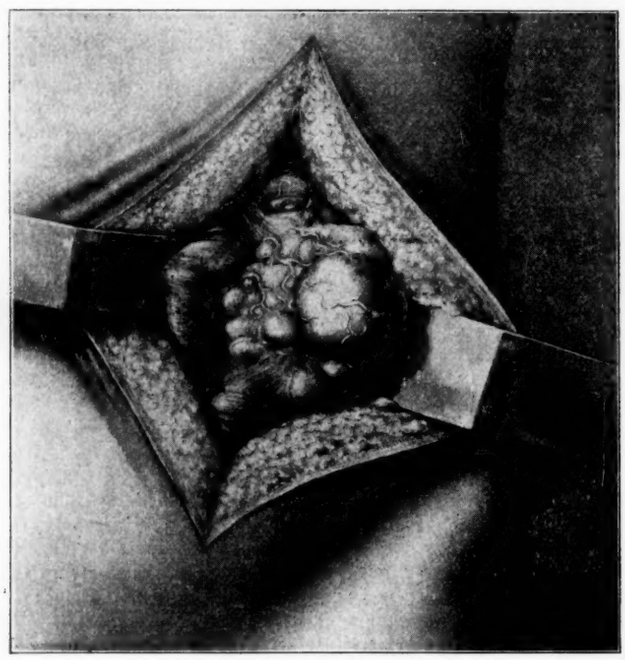
* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. Etiology of Certain Cases of Left-sided Intra-abdominal Suppuration, read before the American Surgical Association, May, 1907.

excised the scar of the previous operation. Incision was deepened until the peritoneal coat was reached. An attempt was then made to expose the sigmoid on its outer aspect, which was the seat of the previous abscess. This was, however, abandoned on account of the dense adhesions, which existed as the result of the previous infection. The peritoneum was next opened somewhat nearer the midline, and a small amount of turbid serum escaped. The intestines lying in the left iliac fossa were moderately injected, and in places glued together by a fibrinous exudate. On exposing the upper part of the sigmoid it was found to be deeply injected and edematous. On the median side of the gut near its mesenteric border, and extending well on to the median leaflet of the mesosigmoid was an oval inflammatory mass 8 or 10 cm. in its longest diameter (Fig. 1). This mass was apparently made up of an acutely inflamed diverticulum covered by edematous peritoneum, to which there were attached a number of greatly swollen appendices epiploicæ. The inflamed area was acutely red, very edematous and covered with a number of enlarged and tortuous blood vessels. On gentle palpation the tumor was found to be fluctuating; it evidently contained a quantity of pus. The colon was exposed and examined for some distance above and below the inflamed lesion to detect the presence or absence of other diverticula. As none were found, an attempt was



Acute diverticulitis of sigmoid.

made to draw the loop of sigmoid through the abdominal wound with a view to treating the lesion by the extraperitoneal method. This was found to be impossible on account of the dense adhesions from the previous operation. The parietal peritoneum was then drawn tightly around the inflamed diverticulum, and held snugly in place by a few catgut sutures at its upper and lower angles. The exposed diverticulum was then surrounded by several layers of sterile gauze, which served also to press the parietal peritoneum snugly against the loop of sigmoid and its mesentery. The wound was then drawn together at its upper and lower angles and united with silk wormgut sutures. In this manner the peritoneal cavity was completely closed, leaving only the enlarged and inflamed diverticulum exposed in the bottom of the wound.

Course After Second Operation.—The patient made a satisfactory recovery from the anesthetic, and with aid of a moderate amount of morphin passed a comfortable night. In the morning the temperature was 101, the pulse 88. The patient passed a fairly comfortable day, there being practically no reaction from the operation. On dressing the wound at the end of forty-eight hours, it was found that two small perforations had formed, through which there exuded a moderate amount of foul-smelling pus. Later the diverticulum was freely opened, and a minute opening found, which communicated with the lumen of the bowel. From this time on the treatment consisted in daily dressing with irrigation of the wound and subsequent packing with sterile gauze. The temperature rapidly fell to the normal, the pain ceased, the appetite returned, and the bowels moved. The amount of fecal discharge from the intestinal wound varied from day to day, but was never large. The fistula finally closed about three weeks after the operation.

Last Stage of Operation.—On the twenty-seventh day, as the necrotic walls of the diverticulum had entirely separated, and as the wound was well covered with healthy granulations, an attempt was made to replace the exposed portion of the intestine and to close the wound. Ether was administered, and after a thorough cleansing of the tissues, the parietal peritoneum was partly separated from its adhesion to the margin of the bowel and mesentery. The presenting structures were then pressed inward and the separated muscles drawn together by silk wormgut sutures. The peritoneal cavity was not opened. A small drain was left in the center of the wound on account of the possibility of a reopening of the intestinal fistula. No reaction followed the operation. Wound united by first intention, and the small central opening for the drain quickly filled with granulations.

Postoperative History.—As the patient was rather a stout individual, and as the abdominal muscles were somewhat flabby, he was not allowed to sit up until three weeks after the second operation. A few days later he was discharged from the hospital in excellent physical condition.

From my experience, acute diverticulitis, like appendicitis, may be divided into four clinical groups:

Group 1, in which there is a mild inflammation of a diverticulum, which subsides like a catarrhal appendicitis under rest and appropriate medication.

Group 2, in which the inflammation is more severe and progressive, in which the diagnosis is made and operation performed before rupture takes place. As the opening connecting a given diverticulum with the intestine may be small, the acute inflammatory process may serve to completely occlude it, and empyema of the diverticulum with or without the presence of a concretion may develop. The last attack of the patient reported in this paper would be an example of this type of the infection.

Group 3 would comprise those cases in which there has been a rupture of the diverticulum, with the formation of a localized abscess, either intraperitoneal, or, if the diverticulum is situated in a portion of the intestine not covered by the peritoneum, the entire process may be without the peritoneal cavity. The history of the first attack of the patient reported would correspond with this type of the disease.

Group 4 would include all cases in which a rupture of the inflamed diverticulum into the free peritoneal cavity had taken place, with a resulting spreading or generalized peritonitis. I reported an example of this type of the disease in my previous paper.

In general, it may be stated that the symptoms and signs of acute diverticulitis are practically identical with those of acute appendicitis in its various forms, the only difference being that the former occurs as a rule on the left rather than on the right side of the abdomen.

Sufficient data are not available to enable one to determine what percentage of inflamed diverticula actually perforate, and it is therefore not possible to state dogmatically whether a given case of acute diverticulitis with comparatively mild symptoms should be subjected

to immediate operation or should be treated more conservatively. In my opinion, however, the clinical course of the disease is so similar to the various forms of acute appendicitis that the treatment should be the same. Certainly in all acute cases, with severe and progressive symptoms, safety lies in early operation. Had operation in the case reported been delayed, rupture would undoubtedly have taken place within twenty-four hours, and in all probability would have resulted in a rapidly spreading peritonitis.

Regarding the operative technic of the treatment of an inflamed or gangrenous diverticulum, my experience has been far too limited to lay down any hard and fast rules. In my judgment, however, if the diverticulum is small or attached to the bowel by a narrow pedicle, removal, with closure of the intestinal wound by a purse-string or several Lembert sutures, would be indicated, providing the surrounding intestinal wall was not too much infiltrated. In the event of the diverticulum being large, attached by a broad base, or covered by a plexus of enlarged vessels, the safest method, in my opinion, would be the one employed in the case reported, that is, extraperitoneal drainage. If the situation of the lesion is such that extraperitoneal treatment can not be carried out, I suggest packing with gauze, from the abdominal wound to the lesion, leaving this packing in place from forty-eight to seventy-two hours, or until firm adhesions have formed about the gauze column; then removal of the gauze and free opening of the abscess, allowing it to drain through the channel thus formed.

If rupture has already occurred the intestinal wound should be united by suture, if this is possible; if not, adequate drainage should be provided.

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DISCUSSION.

DR. D. N. EISENDRATH, Chicago: This left-sided affection of the abdomen is one that must be considered in the future differential diagnosis of abdominal conditions, and it is necessary to have a clear conception not only of the acute forms of this disease, but of the chronic forms as well. Up to the present time there have been comparatively few cases of diverticulitis reported, either acute or chronic. In a recent number of the London *Lancet* one of the most thorough articles on the subject appeared by Cullen, who collected reports of 105 cases of all clinical varieties of this disease. I believe that in a few years we shall find that it is a comparatively frequent affection of the abdomen.

I had almost forgotten up to the time of seeing Dr. Brewer's first paper a case of my own which has never been published. The patient was a clerk, about 42 years of age, whom I did not see until symptoms of peritonitis were well advanced. My first thought was of appendicitis as the cause, but when the abdomen was opened the appendix was found to be normal. On the left side we found in the sigmoid region a perforated appendix epiploica, undoubtedly the cause of the trouble. Eighteen such cases of peritonitis following ruptured diverticulitis have been reported.

The chronic forms of the disease are beginning to explain many hitherto obscure abdominal lesions. One form is due to connective tissue formation, a chronic proliferative inflammation in the submucous and serous coats producing intestinal stenosis. This may give rise to symptoms of chronic or acute obstruction whose pathology would never be clear unless we understood the subject of diverticulitis. A second way in which the symptoms differ from those of chronic appendicitis is in the formation of enteroliths simultaneously in large numbers of these diverticula. For example, a man 78 years of age had a herniotomy. In the sac lay the sigmoid, which was filled with a large number of enteroliths, each in a diverticulum.

The adhesions formed in the chronic diverticula result in a series of pathologic changes, such as obstruction of the intestines due to changes in these diverticula. The etiology of these so-called vesico-enteric fistulæ was very obscure until it was found that they were caused by adhesions of these diverticula to the bladder, with subsequent perforation. With the information thus gained we have been able to operate on a very large number of cases. The interesting feature in these chronic forms of diverticula is the resemblance of these proliferative forms to carcinoma. There is no doubt that many cases in which a diagnosis of carcinoma of the sigmoid was made were in reality cases of chronic diverticulitis with stenosis.

DR. P. E. TRUESDALE, Fall River, Mass.: I present a few cases to suggest the use of the colon bacillus vaccine in abdominal operations when this organism is or may become a factor in an infectious process. In operations on the large bowel, as you know, the best results are attained by first emptying the colon, then allowing it to remain in a condition of absolute rest for at least twelve hours before operative intervention is done; this with a view to eliminating the number and activity of the colon bacilli. In addition an immunizing dose of stock vaccine should be given.

A woman, aged 24, was operated on for a tumor in the lower abdomen. A multilocular cyst was found. Everywhere adherent to the omentum were the large and small intestines, and an examination of the under side of the tumor revealed a papilliferous degeneration in union with the sigmoid. For an area involving one-half of the tumor circumference and about four inches of its length all the layers of the intestinal wall had sloughed away. Liquid feces escaped into the field of operation.

In the midst of this infected area it was deemed unsafe to make an anastomosis, so that a muscle-splitting incision was made in the left side, the ruptured sigmoid was clamped at either end, drawn through this incision and sutured to the skin. The main tumor was then removed, the peritoneal cavity wiped out and the incision closed, leaving a drain in the pelvis. On the following day it was early apparent that there was an active infection in the median incision and the colostomy wound and that no ordinary means of local treatment could control the infectious process. The case seemed hopeless and the vaccines were tried as a last resort. I believe that they turned the tide in favor of recovery.

The second case was that of a school teacher, aged 21, with symptoms of pelvic disease. At the operation a large tuberculous pelvic abscess was discovered and removed. No opening of the rectum was discovered at this time, but after operation, when the patient was given salt solution, it came through the drain on the abdominal dressing, mixed with fecal matter. The wound soon showed evidence of infection and began to break down. The vaccine was administered, 0.25 c.c. for the first dose. Soon after the appearance of the wound changed and a cleaner process of healing was evident. The culture from the discharge showed *Bacillus coli* and *Staphylococcus aureus*.

The third patient, also a school teacher, aged 51 was operated on for peritonitis believed to be due to a ruptured appendix. At the operation general peritonitis was discovered. The appendix was normal. There were a few adhesions around the gall bladder; a small gallstone had escaped; the gall bladder was perforated near its base, and mucopus was escaping. The gall bladder was extirpated, a drain placed in the wound and in the pelvis, the patient put to bed and given 0.25 c.c. of colon bacillus vaccine. A culture was taken from the gall bladder and from the fluid, which proved to be a pure culture of colon bacilli. Convalescence progressed uneventfully and all symptoms of peritonitis disappeared in the subsequent twenty-four hours. There was then a slight rise in the temperature. The vaccine was administered, 0.5 c.c., and the course of the temperature changed.

The results in these cases are encouraging. If we accept the opsonic theory on which the vaccine therapy has been laid down by Wright and others, and we find that a specific organism is the common cause of infection in the bile ducts and pancreas, we are thereby in a position to treat these cases on

more scientific principles. The acute infectious cases may, at least, be given trial doses of vaccine, for this does no harm, and if by its action we can control the acute process these patients may be operated on during the interval. So, too, in operations on the large intestine, where the colon bacillus is ever present, by immunizing the patient before operation, the scope of the surgeon may be greatly increased and his results as greatly enhanced.

DR. L. L. MCARTHUR, Chicago: The *Staphylococcus aureus* and the colon bacillus are the two organisms which show a very pronounced effect when used as a vaccine, and Dr. Truesdale's suggestion to use them is excellent.

INTESTINAL ANASTOMOSIS; PRESENTATION OF A NEW, SIMPLE AND ASEPTIC METHOD.*

FRANK B. WALKER, M.D.
DETROIT.

Ever since the memorable pioneer work of the late Dr. Nicholas Senn, intestinal surgery has been an attractive and fruitful field. During this brief period there have been proposed many ingenious methods of anastomosis and devices for their performance. Some of them have already become obsolete, while others are gradually being superseded by simpler means. The methods in vogue are serviceable in skilled hands, but are complicated and liable to sepsis or are incomplete. None has been stamped with unqualified approval. All except the McGraw elastic ligature are done on a wide-open gut and are essentially septic operations. The ligature method—the simplest and cleanest of all—does not complete the anastomosis for three or more days and is, therefore, incompetent for those cases in which another communication does not exist.

With the development of definite sutural methods there has arisen a disposition to discard contrivances as unnecessary if not also complicated. The Connell suture—the best representative of them—I have used in preference to all other methods, both sutural and instrumental, and taught to about six hundred graduate students. Although I have been able to adapt it readily to any form of anastomosis I observed that it was difficult for many to learn and for all to remember unless they were in constant practice. Except for the danger of sepsis from the open gut and the somewhat intricate suturing of the last part and tying of the last knot, I should regard it as ideal.

Ideal or physiologic anastomosis has been little sought. The possibility of doing the operation with safety and the advantage of this or that special technic have been reported and discussed frequently, but seldom have the principles of intestinal anastomosis been given adequate consideration. In my opinion, too much has been taken for granted. For instance, the conception of anastomosis not uncommonly held is the making of a communication merely between two attached viscera. It is true that result is accomplished, but that alone will not always fulfill the requirements. Intestinal anastomosis is purely a drainage operation, but to be of any value it must first of all be needed and in the second place unobstructed drainage must be obtained.

The conclusion jumped at, that gastrojejunostomy would cure atonic dilatation and prolapse of the stomach, because it would drain, and gastric or duodenal ulcer, because it would rest those parts, applied only to the result and not to the cause of disease, and it is, therefore, questionable whether gastroenterostomy be a curative or a palliative measure. This doubt is strengthened by reason of the facts that not only have the symptoms attendant on dilatation returned and ulcers reappeared lower down after apparent temporary relief, but it has been found in some cases that the anastomotic openings had healed shut. In other words, intestinal anastomosis, although inapplicable in some cases, had been employed as a makeshift instead of other more rational modes of treatment.

From the viewpoints of anatomy and physiology, the normal outlet of the stomach is by way of the pylorus. The stomach contents are propelled not by gravity, but by an inherent mechanism. If drainage be interfered with by some benign abnormality at or near the pylorus, the adoption of Nicoll's or Finney's or other possible pyloroplasty in preference to gastroenterostomy would conserve the normal mechanism of drainage and give promise of permanent relief. If, however, that passageway be permanently barred and another exit must be provided, gravity would come into play and indicate that the outlet should be situated, if possible, in the lowest convexity of the stomach and, on account of the to-and-fro movement, on the posterior rather than on the anterior surface. The exact point on the stomach longitudinally will depend somewhat on the case. It should be remembered, however, that, notwithstanding the change in shape and position of the organ in the empty and full conditions, the lowest convexity remains near the junction of the middle and right thirds of the greater curvature.

In cases in which anastomosis is performed without resection, it is essential that the communication between the afferent and efferent viscera be direct, and, therefore, that there be no kinking of the distal bowel either at the opening or lower down. Violation of this rule is doubtless responsible for the occurrence of the so-called vicious circle.

In the performance of posterior gastrojejunostomy it is a wise precaution to attach the jejunum firmly to the edges of the opening made in the transverse mesocolon. Failure to do so has been followed by a hernia into the lesser peritoneal cavity and intestinal obstruction.

If the intestine be resected and lateral anastomosis be performed, the stumps should be reasonably short and so attached, each to the other communicating bowel, as to preclude their intussusception. I have observed a long loose stump telescoped through itself into the intestine so far as to make a valvular closure of the anastomotic opening.

Besides promoting free drainage, the ideal method must be safe from sepsis and hemorrhage, simple of understanding and performance, complete in itself and applicable to all forms of anastomosis.

Sepsis is the most important factor to be contended with in intestinal anastomosis. The introduction of it from without can be controlled in this as well as in any other abdominal operation, but the possibility of infection from the open gut and of postoperative leakage is a constant menace. The danger from these sources can be minimized during the operation by walling off all the other structures with abundant sterile pads placed under and around the parts to be handled. Preoperative stomach washing, milking the intestine and the use of tapes and clamps to hold back the visceral con-

* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

tents serve their purposes, but an open bowel is unavoidable in carrying out any of the methods in vogue, except the elastic ligature, and is a serious defect.

Postoperative leakage is usually due to the following three conditions: (1) imperfect serous apposition at the mesenteric space, (2) sutures too tightly drawn, (3) knotting a through suture on the serous surface.

Serous apposition of the viscera produces valvular approximation of the edges and effectually prevents the escape of bowel contents. This procedure has been adopted in all the methods that have proved successful. In end-to-end anastomosis especial care must be used to invert the mesentery with the intestine at the mesenteric space.

A continuous through mattress suture is preferable to the interrupted form, because it prevents overdistention of the bowel and separation of the edges during the period of healing, and it is more certain than the Lembert suture to close the cut ends of bleeding vessels and to control hemorrhage. It may be introduced and tied from the inside (Gregory Connell) or from the outside (Hayward Cushing). In simplicity and cleanliness the latter excels. A suture that is to be tied on the outer surface, however, should not be carried deeper than the submucous layer on account of the tendency to capillary action and seeping. No suture should be tied or drawn more tightly than is necessary to secure serous apposition. Otherwise the swelling of the tissues following operation may result in necrosis.

From a theoretical viewpoint, catgut would seem to be ideal suture material, but experience has taught that it softens and separates in the intestinal tissues too quickly to be reliable. Fine twisted silk and linen are safe and answer every purpose.

Almost any method becomes easy through practice, but no method will win universal favor that involves complicated technic or instruments or numerous assistants. A generally acceptable method must also be sur-

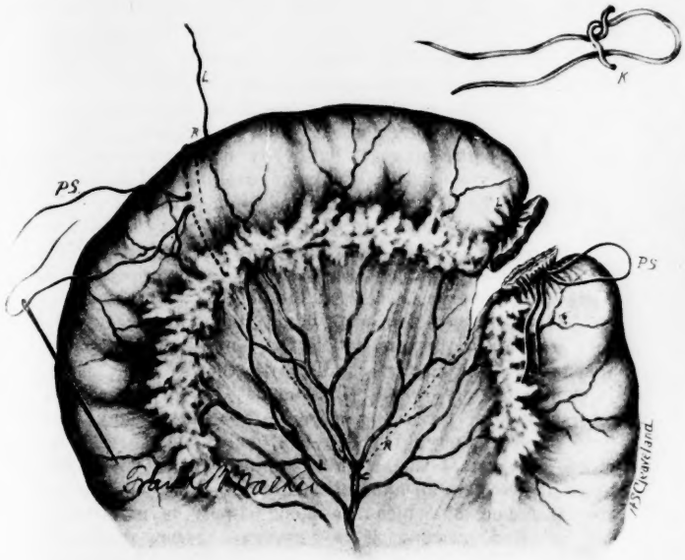

Fig. 1.—L, ligature; PS, purse-string suture; K, slip knot. The left side of Fig. 1 represents purse-string suture and ligature placed and ready for tying; the right side represents them tied and the gut cut across. In the upper right corner the slip knot is represented on a large scale.

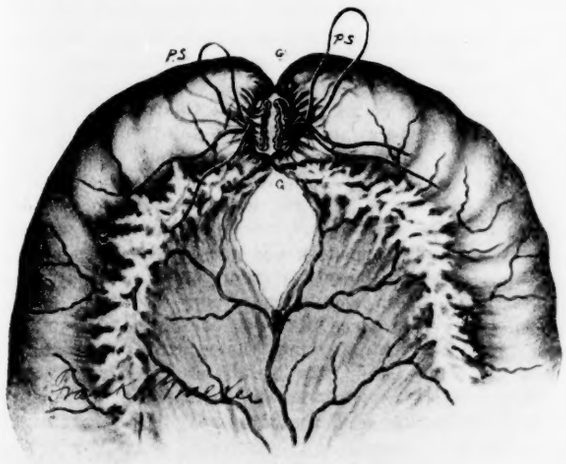

Fig. 2.—This represents the stumps closed by purse-string sutures tied with slip knots and held together by two guy mattress sutures (G).

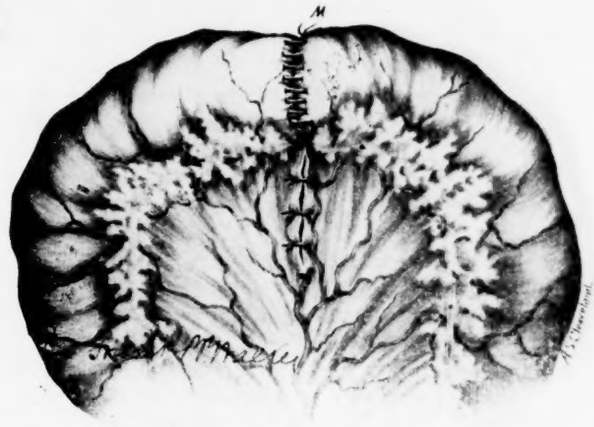

Fig. 3.—This represents the continuous mattress suture (M) placed but not drawn taut. The purse-string sutures have been withdrawn. The mesenteric gap has been closed by three sutures.

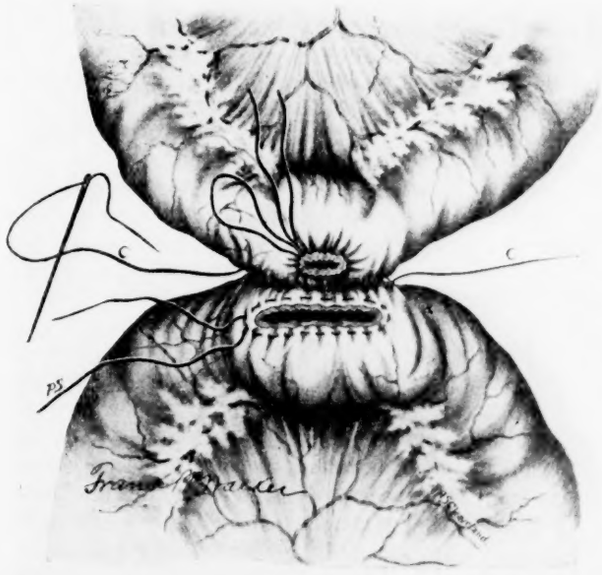

Fig. 4.—This represents two portions of intestine apposed and connected by a continuous mattress suture (C) through a short distance. In the lower gut a purse-string suture has been placed and the wall incised. In the upper gut the purse-string suture has been tied with a slip knot.

gically complete without the mediation of an uncertain hidden contrivance and must be adaptable in any emergency requiring anastomosis.

The method which I present here is not presumed to be a substitute for ignorance of surgical principles or carelessness in their practice, but it can be carried out by one pair of hands with scissors, needle and thread, and combines the advantages of other procedures without their defects. It is based on the closure of the gut during the operation by means of a removable purse-string suture, on serous apposition by a continuous through mattress suture inserted from the outside of the gut, and on the withdrawal of the purse-string suture after the suturing is completed, leaving an open lumen. The technic is shown in Figure 1, and is as follows:

For resection of intestine and mesentery as at R (Fig. 1), and end-to-end anastomosis, place ligatures (L) on healthy bowel proximally and distally beyond the part to be removed. Insert purse-string sutures (P. S.) about bowel one-half inch proximally and distally from ligatures (L) and tie with slip-knot (K), made by drawing only a part of one end of purse-string suture through knot. Ligate mesenteric vessels. With scissors cut across intestine close to purse-strings and divide mesentery as on dotted lines.

Bring the stumps of resected intestine together so that they shall correspond at mesenteric borders (Fig. 2). Place two or three guy mattress sutures (G) about one-eighth inch above purse-string sutures (P. S.) to hold the stumps temporarily in proper relation.

Begin continuous mattress suture (Fig. 3, M) at any point, except at mesenteric border, and with it encircle the bowel about one-quarter inch above purse-string sutures, passing from side to side six or seven times to the linear inch. The anastomotic suture should include the submucosa and may include the mucosa also, as a through suture does, except in that part of it which contains a knot. Extra care is necessary in placing the sutures evenly and in inverting the mesentery at mesenteric borders. The loops and ends of purse-strings project between the passes of the encircling suture until withdrawn. After the encircling suture has been placed around the bowel, drawn sufficiently taut and tied, the purse-strings are untied and withdrawn by pulling gently on their loose ends. The gap in the resected mesentery is closed by sutures or ligatures.

Theoretically, end-to-end anastomosis would seem to be more nearly ideal than the lateral form. It provides a more direct communication and conserves the function of the muscular mechanism of the intestine. It is impossible of adoption, however, in certain pyloric conditions as mentioned previously, and whenever the intestine is so small that inversion of the edges would make a diaphragm and closure of the lumen. In such cases, the lateral method has proved to be an excellent substitute. Moreover, it avoids the disadvantages of the mesenteric space. It is performed by the purse-string method as follows:

For lateral intestinal or gastrointestinal anastomosis bring the two viscera into the desired relation and place a continuous mattress suture (Fig. 4, C), connecting them through a length of from two to three inches, oval-shaped. Insert purse-string suture (P. S.) into each viscus one-quarter inch distant from and parallel to the continuous mattress suture (C). The purse-string sutures should be one-half inch shorter than the surrounding suture. With scissors or knife incise visceral wall within purse-string, trimming out strip of mucosa if desired, tie purse-string suture with slip-knot and, after both viscera have been thus treated, complete surrounding suture (C). After the latter has been placed, drawn sufficiently taut and tied, the purse-string sutures are untied and withdrawn by pulling gently on their loose ends.

DISCUSSION.

DR. F. GREGORY CONNELL, Oshkosh, Wis.: Improvements on the present attempts at aseptic intestinal technic are demanded. Dr. Walker's method and those of Muskowicz, E. Wyllys Andrews and Parker and Kerr are similar in principle to that of an Italian, Parlavecchio, which was published in 1897. They allow of a comparative asepsis, and will emphasize the necessity of the greatest care in an effort to avoid unnecessary soiling of the peritoneum by intestinal contents. Practical methods of union may now be performed in a comparatively aseptic manner; but when not to do enterorrhaphy has not ben emphasized. Breaks of continuity of the intestinal wall do not unequivocally demand immediate enterorrhaphy. The self-evident truth that a live patient with a fecal fistula is a more satisfactory result than is a corpse with a successful intestinal union, has occasionally been overlooked. Many points will have to be decided in the diagnosis before, during and after the operation, that if not judged correctly will render valueless a technically perfect enterorrhaphy, such as: When (in strangulation) to leave the bowel alone, or to perform enterectomy; when (in wounds) to perform simple enterorrhaphy, or resection; when (after enterectomy) to perform enterorrhaphy by end-to-end, end-to-side, or side-to-side union, or to establish an enterostomy; when (with stenosis) to do a resection, an anastomosis or an exclusion. To procure normal tissue, of which the blood supply is perfect, at the cut ends for suturing, it is sometimes necessary to remove apparently formidable lengths of intestine. Failure to secure such tissue is undoubtedly responsible for a large percentage of unsatisfactory results. To accomplish intestinal union the method of choice is that with needle and thread alone. A prime requirement of the suture is a secure stitch holding the cut ends in sero-serous apposition, or apposition continuously around the entire line of union, to secure which caution must be exercised at the mesenteric junction, because of the triangular space between serosa and muscularis formed by the anatomic arrangement of the peritoneum which allows a longitudinal strip of the intestine at this point to be devoid of serosa. The perforating, or through-and-through suture has been generally adopted as the important, security-giving stitch. The use of a second row of stitches, including only the serosa and the muscularis, is at present looked on as merely a precautionary measure for the purpose of causing a broader sero-serous apposition and not to resist tension. Any stitch that enters the bowel lumen or comes into contact with the intestinal mucosa should be of non-absorbable material. This will remain in place until its usefulness is past, after which it will be eliminated into the intestinal current. Catgut, on the other hand, may be absorbed too rapidly. The secondary reinforcing sero-muscular stitch does not communicate with the lumen, and, therefore, may be of catgut. The time-saving feature and the hemostatic properties are perhaps the most important reasons why the continuous suture is employed more often than is the interrupted. Drainage will sometimes be necessary ofter enterorrhaphy, but not as often as in the past. The drain is to be placed adjacent to but not in contact with the line of visceral suturing.

DR. A. J. OCHSNER, Chicago: Dr. Walker's beautiful and ingenious operation must not mislead us into the idea that patients ordinarily die after intestinal operations because of the operation. They die because of the condition in which they are at the time they are operated on, or because of faulty surgical judgment. In intestinal operations, if the infection is still within the intestine, then death results from an unrecognized condition of the blood vessels. There is a thrombosis somewhere which results in a slough and kills the

patient. Either the surgeon has not gone far enough beyond the seat of the disease or has traumatized the intestine, or has made the gross blunder of infecting the patient himself, which is practically a thing of the past among those who do intestinal surgery.

CARDIOSPASM,

WITH A REPORT OF FORTY CASES.

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The first series of cases of so-called idiopathic dilatation of the esophagus was collected by von Ziemssen and Zenker in 1878. The report was based mostly on postmortem findings, little being known of the history of the cases. For our knowledge of the symptomatology of the disease we are indebted to the writings of Lichenstein, von Strumpell, Meltzer, Rumpel, Kraus, Rosenheim, Fleiner, Ewald, Netter, Kelling, Einhorn, Martin, Oppler, Gottstein, Dauber, Zausch, Strauss, Lossen, Sippey, and others.

In 1904 Mikulicz estimated that 100 cases could be collected from literature. Since that time a number of cases have been reported, notably in German literature, and by Sippey, Lerche and Erdmann in this country. Gottstein, in Keene's "Surgery," states that 140 cases have so far been reported, and himself adds 25 more. This paper is based on 40 cases which have come under my observation. Eleven cases of this series were reported in a paper[1] read before the Minnesota State Medical Society in June, 1906.

The disease has been attributed to the following causes: first, primary cardiospasm (Meltzer); second, primary atony of the musculature of the esophagus (Rosenheim); third, simultaneous presence of cardiospasm and paralysis of the circular fibers of the esophagus, brought about by paralysis of the vagus (Kraus); fourth, congenital disposition (Fleiner, Zenker, Luschka and Sievers); fifth, primary esophagitis (Martin), and, sixth, kinking at the hiatus esophagi.

The unsatisfactory condition of our knowledge of the etiology of this disease is indicated by the variety of the titles under which the cases have been reported—idiopathic, fusiform, diffuse dilatation; dilatation without anatomical stenosis, etc.

Gottstein classifies motor disturbances of the esophagus as follows:

1. Hyperkinetic, in which spastic contractions of the muscle exceed the physiological normal.

2. Hypokinetic, in which there is an impairment of the normal muscular tone.

While it is probable that primary atony of the esophageal muscle rarely occurs, I doubt very much its being a frequent factor in the cases which have been reported under the headings, idiopathic dilatation of the esophagus, cardiospasm, etc. In the study of a considerable number of cases the almost invariable history of spasm at the onset, followed at a later period by the evidence of dilatation—that is, retention of food in the esophagus—is most convincing evidence that the spasm precedes the dilatation and that primary atony is relatively a rare condition. This conclusion is further borne out by the evidence of early muscular hypertrophy in nearly all cases which have come to postmortem; by the frequent observation of severe cardiospasm unaccompanied by dilatation of the esophagus, and by the good results which have followed forcible dilatation. The occasional case in which spasm can not be demonstrated does not exclude its being the primary factor. The spasm is in many cases periodic, and after dilatation takes place little if any more than the normal tone of the cardiac muscle is required to produce evidence of stenosis. Rosenheim, in support of the theory of primary atony, reports cases in which the food passed slowly through the esophagus, causing discomfort or pain, but he fails to show that these cases ever develop spasm at the cardia or dilatation of the esophagus.

The history, as given in Cases 11 and 24, suggests the possibility of dilatation almost from the onset. These histories date back eighteen and twenty-six years, and it is very probable that the more striking symptoms that came on with the dilatation overshadowed the early symptoms of spasm in the patient's memory. Severe spasm was present at the time these cases came under observation. Atony of the musculature of the entire gastrointestinal tract, without obstruction, is frequently observed, but it is almost invariably associated with other neurotic manifestations. There is no reason why spasm should exist in primary atony unless we accept Kraus' theory of a simultaneous atony and spasm from degenerative changes in the vagus. His theory rests on the finding of degenerated fibers in the vagus in one case which came to postmortem. His observations have not been confirmed.

The theory of congenital disposition is interesting but not susceptible of demonstration. That anlage may be a factor in some instances is suggested by the few rare cases reported as occurring congenitally or in early childhood (Luschka, Fleiner, Zenker, Gottstein). In six cases of this series sufficient angulation at the cardia was present to prevent the passage of a sound by the usual method. Whether this exaggeration of the normal obliquity of the insertion of the esophagus through the diaphragm is the cause of the spasm, or is a result, I am unable to state.

The cause of the spasm is largely speculative. A few cases have been reported associated with gross lesions of the esophagus, such as ulcers, fissures and small carcinoma in the cardia, carcinoma of the stomach, etc. We have seen three cases of carcinoma complicated by cardiospasm, and one case of hour-glass stomach due to syphilis with secondary cardiospasm. Esophagitis and ulcer of the esophageal wall not in close proximity to the cardia are to be looked on as secondary to cardiospasm and dilatation, not as primary factors. In the majority of cases, however, no such possible etiologic factors are to be found. Cardiospasm is not often present in inflammatory conditions of the esophagus which come under observation. Evidence of esophagitis previous to the onset of the cardiospasm could not be elicited from any of the cases. With three exceptions, none of the forty cases reported had neurasthenic symptoms. The age and sex of the patients may be seen by referring to the accompanying table. The average age at the onset is 29 years; twenty-two patients are females, eighteen males.

Deglutition is a complicated, reflex act in which many muscles cooperate. Without entering into a discussion of the exact part played by each, it may be stated that food is carried from the mouth into the esophagus by the omohyoids, hyoglossi, pharyngeal and associated muscles. In the upper portion of the tube the bolus is rapidly carried down by the cross striated muscles of its

1. Northwestern Lancet, September, 1906.

walls; in the lower portion it is moved more slowly by the peristalsis of the smooth muscle fibers. The cardia is supplied through the vagus with both dilating and contracting fibers, presided over and controlled by the medulla (von Operchowski). The normal action of this mechanism is but imperfectly understood, and even less is known of its disturbances in cardiospasm. The cardia is normally closed by contraction of its sphincter muscle, and is opened by its dilator nerves, and the bolus of food is pushed into the stomach by the peristalsis of the esophagus. Authors differ as to the way in which liquid food is carried along the esophagus. According to Cannon, Meltzer and Moser, liquids are carried deep into the esophagus or to the cardia by the forcible contraction of the omohyoids and associated muscles. Schrieber says that liquids are moved down the esophagus by peristalsis. Be this as it may, the esophagus is unable to force liquids and solids past an obstructed cardia with equal facility. After dilatation takes place the bolus of solid food is carried forward in a normal manner as far as the upper end of the dilatation. At this point the peristaltic contraction ring ceases to exert any direct force on the bolus, but sweeps around it.

Food is propelled from the dilated esophagus into the stomach by two forces, gravity and increased esophageal pressure. The force exerted by gravity equals the height of the column of liquid food in the esophagus. The intraesophageal pressure is raised above the normal by those forces which raise intrathoracic pressure, and by crowding more food into the partially filled dilatation. At each act of deglutition sufficient food is ejected into the stomach to lower the intraesophageal pressure to a point where it is no longer sufficient to overcome the resistance offered by the spastic cardia. Little, if any, more than the normal cardiac tone is required to cause the retention of food in the esophagus. These points are well illustrated by Cases 35 and 37. Each patient had learned to take sufficient food to maintain a fair state of nutrition, by first swallowing solid food to the point where he was conscious that more would be regurgitated; then at the end of inspiration several swallows of fluid were rapidly and forcibly thrown into the esophagus, thus using the pharynx and upper portion of the esophagus much like the pump of a hydraulic press. The patient in Case 37 has acquired to a nicety the ability to practice this act. She stated that very rarely, if ever, during the last few years of her trouble had any food been regurgitated. During the period in which she was under examination, previous to dilating the cardia, from four to twelve ounces of food could be withdrawn from the dilated esophagus five hours after eating.

In the development of cardiospasm three stages, more or less clearly defined, may be recognized in the clinical histories.

1. In this stage the peristaltic contraction of the esophagus is sufficient to force the food through the spastic cardia. This is characterized clinically by the complaint of discomfort, pain, choking sensation, etc.

2. The peristaltic force of the esophageal muscle is no longer able to overcome the resistance of the contracted cardia, and the food is immediately regurgitated. This may result from an actual or relative increase in the obstruction at the cardia; that is, the spasm may become accentuated or the esophageal muscle may tire under the unusual load. In some cases the spasm is sufficiently severe from the onset to cause the immediate regurgitation of food. As a rule the spasm is, during the early part of the history, periodic; but as the condition develops mild spasm becomes more continuous or constant. Marked exacerbations in the spasm characterize the entire course of the disease. The increased work of forcing the food past the contracted cardia results in an early hypertrophy of the esophageal musculature. As the spasm increases in severity the esophphagus becomes less and less able to overcome the obstruction, and atony and dilatation result.

3. Once the esophagus begins to give way the dilatation is rapid. This stage is characterized clinically by the retention of food in the esophagus and its regurgitation at irregular intervals after ingestion. If the spasm is mild for a sufficient length of time from the onset, the hypertrophy may become extreme and dilatation not take place or be delayed for years. The hypertrophy, after becoming well developed, may overcome a most marked resistance at the cardia. Relatively frequent severe spasm at the onset may lead to early dilatation before hypertrophy of the esophagus has time to develop. An impaired tone in the esophageal muscle at the onset of the trouble may also have something to do with the rapid early dilatation that takes place in some cases.

The symptom-complex in cardiospasm is as a rule almost pathognomonic. It may be divided into the three stages noted in considering its development: first, cardiospasm without food regurgitation; second, cardiospasm with immediate food regurgitation; third, cardiospasm with dilated esophagus, the retention of food in the dilated portion and its regurgitation at irregular intervals after taking. In the majority of cases the first attack of spasm occurs suddenly and unexpectedly when the patient is at the table. A spasmodic, choking sensation is felt at some point in the course of the esophagus, generally located at the cardia and radiating to the back or neck. It is rarely described as a pain. Some patients locate the discomfort entirely in the epigastrium, left hypochondrium or in the upper portion of the esophagus. It may occur for months independent of the taking of food. In Case 40 many physicians had, during the course of twenty years, agreed with the patient in attributing the obstruction to an adenoma of the thyroid. The spasm is often described as a slight delay in the passage of food or the food "seems to stick beneath the lower sternum."

In the second stage the food is, after swallowing, immediately regurgitated. During the early portion of the history the attacks occur periodically, or mild spasm is continuous, with periods of marked exacerbation which are characteristic of the entire course of the disease. The patient in Case 9, in which the esophagus was not dilated, had periods of three to seven days in which all solid food was immediately regurgitated, alternating with periods of days or weeks of absolute freedom from dysphagia. In Cases 6, 27 and 28 the first attack of spasm was severe enough to cause immediate food regurgitation.

After dilatation of the esophagus takes place the spasmodic, choking sensation may be absent. The first portion of each meal is retained. After filling the sac, further food is regurgitated or forces the preceding portion into the stomach. Of the contents of the esophagus at the completion of a meal the more fluid portion may slowly seep through the cardia; the solid food with much mucus is either regurgitated at irregular intervals or remains in the sac until the next meal. Solid food, like meat, may be delayed at the cardia for several days,

softer food in the meantime passing into the stomach. The sac is never completely emptied, several ounces of solid food often being present in the dilated esophagus when the patient states that it is going through all right. On many occasions I have withdrawn from two to sixteen ounces of food after twenty-four to thirty-six hours of fasting. That there is a sense of weight or discomfort in the chest, and that the food is not sour, are statements common to all cases. The vomiting is painless and but rarely accompanied by nausea. Some insist that the food enters the stomach but will not stay. The majority state that it lodges beneath the lower sternum. Ten cases of this series complained of waking at night to find the nasal passages filled with food.

Of this series, seven cases came under observation during the second stage and thirty-three during the third stage. Four cases of secondary cardiospasm are not included. Loss of weight was notable in the majority of the cases. A few maintained a fair degree of nutrition in spite of the dysphagia. Two of the cases in the second stage and ten of the cases in the third stage were markedly emaciated. The patients in Cases 10 and 41 could not walk without assistance, and the patients in Cases 22 and 42 were brought in on cots.

Fig. 1. Whalebone staff with olive drilled for silk thread.

Fig. 2. Whalebone staff, spiral tip and olive.

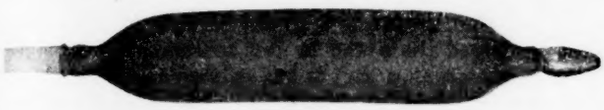

Fig. 3. Dilator.

In the diagnosis and study of a case of cardiospasm the following points should be demonstrated:

1. The food is regurgitated from the esophagus and not from the stomach.
2. The existence and character of obstruction at the cardia.
3. The presence or absence of esophageal dilatation and its shape, size, etc.
4. The presence or absence of gross lesions in the esophagus or neighboring organs which might excite the cardiospasm.

In the demonstration of these points the following measures have been resorted to:

1. The various stomach-tube tests, including the methods proposed by Rumpel, Kelling and Einhorn.
2. Passage of a bulbous sound on a whalebone staff.
3. The passage of the sound which I have devised.
4. Radiographing a bismuth mixture in the dilated esophagus.
5. Determination of the size of the dilatation, by means of a rubber balloon distended within the esophagus.
6. Esophagoscopic examination.

Each case is given a test meal. If sufficient obstruction exists to prevent the food from entering the stomach, it is given with a tube; a second portion of the meal is given in the usual way. At the end of an hour the tube is again introduced and the stomach contents obtained. The tube is now withdrawn into the esophagus, the contents obtained, and the two portions are analyzed. The esophageal contents in all cases were alkaline or neutral in reaction. In the analysis of the stomach contents no marked variations from the normal were noted. The average acidity was below normal; a high acid content was present in a few cases. In all except Cases 7, 13, 17, 18, 30, 39 and 43 (second stage) food was present in the esophagus. On many occasions several ounces of food were withdrawn from the sac after

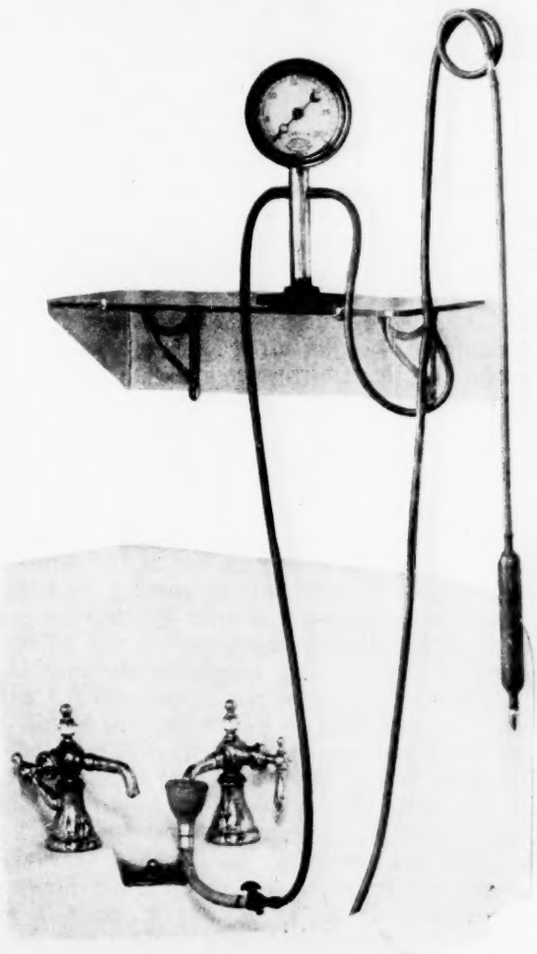

Fig. 4. Dilator, showing arrangement of tubing.

twenty-four hours of fasting. In nearly every instance when a tube was passed during a remission in the complaint, and the patient stated that the food was going through all right, small or even large amounts of food were found in the esophagus. The simple introduction of a tube usually causes the regurgitation of non-acid food, which comes up in a manner that leaves little doubt of its source. In eight cases it was possible to pass a tube in the ordinary manner; in sixteen cases, with a wire stylet or a staff and olive; in ten cases by means of a silk thread and a whalebone staff; in six cases by means of a silk thread, staff and spiral tip referred to later. The more complicated tests of Rumpel,

Einhorn and Kelling were frequently resorted to, but are unnecessary and often unsatisfactory.

The failure to pass a stomach tube when an olive readily passes the cardia is at once suggestive of cardiospasm. In thirty cases the passage of a 15 mm. olive was possible without encountering any marked obstruction. In ten cases it was impossible to pass the bulb, at least without using greater force than I considered safe. In these cases the sound was passed on a silk thread as a guide. The patient slowly swallows six yards of silk thread. This passes down through a sufficient number of coils of intestine to prevent its withdrawal on being pulled taut. It is advisable to have the patient swallow three yards in the afternoon and the remaining three yards on the following morning. In this manner the first portion forms a snarl in the esophagus or stomach, which passes out into the intestine during the night, the remaining portion passing without snarling. The olives are drilled for threading from the tip to one side of the base. With five exceptions, no difficulty was experienced in passing a 15 mm. olive when using the silk thread as a guide. As a rule a slight increase in the resistance was encountered at the cardia, but frequently the olive passed without its detection. Rarely was that slow giving way at the cardia, frequently described by authors, encountered when the sound was passed on the thread. It can at least be stated that marked resistance to the passage of a sound in cardiospasm does not often exist, provided it enters the cardia directly. Obstruction sufficient to prevent the passage of a sound is due to its being caught by contact with the bottom of the sac; and the sense of the slow giving way of the cardia under gentle pressure is due to the resistance encountered in sliding the olive along the flaring wall of the esophagus or the straightening out of some fold just as it is about to enter the cardia. The character of the resistance met at the cardia with the knowledge obtainable only by passing the sound on a thread, that the sound is directly entering the cardiac orifice is of the utmost importance in the differential diagnosis of organic and spasmodic stricture at the cardia. In six cases, using a whalebone staff 3 mm. in diameter, I found it impossible to pass the sound. The patient in the first case encountered could take sufficient food to make it seem improbable that sufficient narrowing at the cardia could exist, either from cicatricial or spasmodic stricture, to prevent the passage of a 3 mm. olive. Only one conclusion was tenable, namely, that there must be some angulation or tortuosity present. I had the flexible tip shown in Fig. 2, made to screw on to the end of the whalebone staff. It is very flexible, but will not double on itself when subjected to a force that can be safely used in sounding. With this tip the 15 mm. olive readily passed the cardia in the six cases referred to.

Radiographs were made in all except Cases 1, 2, 3 and 4. Exposures were generally made after giving the patient two ounces of bismuth mixed with kumiss, mucilage of acacia, or starchy food. The greatest contrast was obtained by radiographing a rubber dam balloon, distended with the bismuth mixture, within the dilated esophagus. The dilated esophagus is most clearly shown by placing the tube and plate so that the rays penetrate in an oblique direction from the right anterior to the left posterior, thus throwing the shadow to the left of the spine on the plate. However, this distorts the shadow more than a picture taken directly anterioposteriorly. The shadows in all except Cases 7, 13, 17, 18, 20, 30 and 43 indicated dilatations which would hold from six to twenty ounces, and corresponded in size with the measurements obtained with my sound and by filling with water. In all but three cases the dilated esophagus was clearly shown and the position of the shadows and their shapes and relations to the surrounding parts were such that it would be almost impossible to mistake them. Radiographs showed the dilatation to be spindle-shape in 18 cases, cylindrical in 12 cases and pyriform in 3 cases.

The dilatations which were spindle-shaped had an S-like curve, the lower convexity being to the left and the upper convexity to the right. The dilatation almost uniformly extended as high as the third dorsal vertebra. In Case 5 the shadow extended from the cardia to the upper margin of the sternum and had an almost uniform diameter of two and three-fourths inches.

In Cases 7 to 40 the radiographic findings were confirmed by a method of sounding to which I first resorted in Case 7 to demonstrate the absence of dilatation. This sound is constructed the same as the Russell bag used for dilating the cardia. A rubber dam balloon is attached to the lower end of a stomach tube in such a manner that the tube is closed, and holes are punched in the tube so that its caliber communicates with the interior of the balloon. A spherical or oval silk bag 22 mm. in diameter is drawn over the balloon and fastened to the tube. This is introduced into the stomach with a whalebone staff and distended with water under sufficient pressure to make the stylet, tube and balloon form a solid sound. The sound is drawn up to locate the cardia, collapsed, drawn into the esophagus and distended. If, under distension, the sound can be moved freely up and down, it is withdrawn and the silk bag replaced by a larger one. In this way, by using a series of sounds of increasing size, the diameter of the esophagus at any point, and an approximate idea of the shape and size of an existing dilatation, may be obtained. The demonstration of a sac by this method is also proof that the sac is a dilatation and not a diverticulum, provided the sound is first introduced sufficiently far to give assurance that it has entered the stomach.

Strauss' method of measuring the capacity of the esophagus is more accurate and should be carried out in all cases for the purpose of determining the fate of the dilated esophagus after the cure of the cardiospasm. A rubber balloon is distended within the esophagus with air, and the amount of air measured as it is introduced.

To complete the diagnosis an esophagoscopic examination should be made. In addition to the catarrhal changes, evidence of muscular hypertrophy, ulcerations, scars, papillary excrescences, etc., may be noted. The cardia appears funnel-shaped or like a rosette. Fissures and ulcers at the cardia should be carefully watched for, as they may be looked upon as excitors of the spasm and require either preliminary treatment or additional care when dilating the cardia. The occlusion at the cardia is in many cases sufficient to prevent the passage of the instrument. This is due not so much to the strength of the spasm as to the impossibility of presenting the esophagoscope perpendicularly to the plane of the cardia. This difficulty may be overcome either by an esophagoscopic obturator, or, in some cases, by painting the cardia with a cocain solution.

The obturator is made of steel and tapered so that the flexible tip gradually merges into the rigid tube of the esophagoscope. The olive and cylindrical portion of the obturator are drilled so as to permit of passing it

on a silk thread. This obturator in many cases very much facilitates the introduction of the instrument at the introitus.

Until recently the treatment of cardiospasm has consisted in such ineffectual measures as attention to the patient's general condition; fluid, non-irritating diet; effervescent drinks; bromids; the frequent passage of large sounds; and, as a last resort, gastrostomy. In the first four cases of our series gastrostomy was done. Three of the cases were operated on at St. Mary's Hospital for stenosis of the cardia. Its cause was unrecognized at the time, but in each instance the condition of the patient warranted a gastrostomy. After the operation, periods of feeding by the mouth alternated with periods of introducing food through the gastrostomy opening. In one case the patient completely recovered; two were finally lost sight of. Case 4 was afforded much relief for several years by the frequent passage of a large bougie. These cases are introduced into the series for future reference.

Mikulicz[2] reported that he had operated in four cases with apparent perfect success. A gastrostomy was done and under the control of two fingers a long, curved forceps, the blades covered with rubber, was worked into the cardia. The forceps was gradually opened until the maximum distance between the blades reached six or seven centimeters. Erdmann[3] reports one case entirely cured by this method, after an interval of twenty months. Case 8 of this series was completely relieved for four months by this operation. This major operation only is warranted provided the condition is serious and that equally good results can not be obtained by simpler means. Russell[4] was the first to report a sufficient series of cases to demonstrate the efficacy of dilating the cardia with a silk-covered rubber balloon. Four cases were completely cured, one was much improved, and one was not improved. About thirty cases have been reported as cured by this method.

The construction of the dilator as used in the cases here reported is readily seen from Figures 3 and 4. It is made by cementing a rubber dam balloon to one end of a piece of non-elastic rubber tubing in such a manner that the tube just passes through the balloon. A number of holes are so punched in the tubing that its lumen connects with the interior of the balloon. A sausage-shaped silk bag is drawn over the balloon to preserve its shape on distention. Several sizes, 10 cm. long and from 20 mm. to 40 mm. in diameter, are provided. A second rubber balloon is drawn over the instrument to facilitate its introduction. If the dilator is slightly constricted in its middle third, the tendency for it to slip into the stomach is lessened. Provision is made, for removing the staff to prevent its maceration when not in use. To avoid the annoyance incident to exchanging silk bags, it is well to have several dilators, only one staff being necessary. The metal tip of the staff is threaded for the set of olives used in sounding and for the spiral steel tip previously referred to. The dilator is connected by rubber tubing with a water-tap or pump. Into this tubing two hard-rubber T joints are inserted, one for an altitude gauge or manometer, and the other for a piece of tubing to permit draining the instrument without disconnecting at the tap, and for controlling the pressure. The position of the cardia having been previously determined, the dilator is introduced sufficiently far for the cardia to engage the balloon at its middle third. The instrument is firmly held with the right hand, the index finger resting against the teeth, to prevent the dilator being drawn into the stomach. The tap is now opened enough to fill the instrument and deliver a good stream through the tubing for drawing the instrument, but not to indicate any pressure. The pressure is now slowly raised by pinching the tube between the thumb and index finger of the left hand. Various pressure regulators have been used, but none give the absolute control which is possible with this simple device. The pressure is, up to a certain point, determined by the tolerance of the patient, as indicated by the pain caused at the moment of distention. It must be sufficient to paralyze the sphincter. If a pressure of 500 mm. will not accomplish this, the pain is discarded as a guide, and dilatation is carried out by the use of dilators of gradually increasing size, sufficient pressure being used to assure each size being distended to its maximum diameter at the cardia. The safety of this method of forcible dilatation is based on the assumption that there is a certain latitude in the size to which the cardia may be dilated between the points at which paralysis of the sphincter and rupture of the esophagus will occur.

Many of the cases are relieved by a pressure of from 50 mm. to 100 mm. The number of dilatations has ranged from one to five, with a few exceptions. In two cases, 7 and 13, in which dilatation of the esophagus was not present, the treatments were repeated respectively seven and eleven times. The cases in which angulation at the cardia was present required more forcible and a greater number of dilatations. Within four or five days after the first dilatation, some food begins to lodge in the esophagus. The first two or three treatments are repeated at intervals of three to four days. The case is not discharged until the esophagus is found free of food remnants at the end of ten days. In the early cases which recurred, this rule was not carried out.

If a fissure is known to exist at the cardia, or if the patient is greatly emaciated, or if severe pain is caused by dilating, an attempt to carry the dilatation hurriedly to the point of giving relief should be avoided, and a pressure of only five or six feet of water employed. This will give relief for a few days at a time, and allow the healing of a fissure or ulcer. Later, the dilatation can be carried to the point of producing sufficient paralysis to effect a permanent cure.

In those cases in which the olive can be passed through the cardia, the dilator enters with equal facility. In those cases in which difficulty was encountered, it was overcome by the same methods which were used in passing the bulbous sound. In the recent cases I have invariably used the silk thread, as it makes the passage of the instrument more rapid, safe and certain.

In two cases of long standing cardiospasm without dilatation, it was some time before I succeeded in dilating the esophagus or recognizing the cause of failure. In these cases the upper portion of the dilator can not fully expand, and hence the portion within the stomach acts as an expanding wedge, drawing the instrument down. If the staff is firmly held against the incisor teeth, the diaphragm is drawn up to its limit and the cardia then dilated.

The immediate results are most striking. The patients are almost invariably able to take any kind of food at the following meal. There is often a complaint

2. Deutsch. med. Wchnschr., January and February, 1904.
3. Ann. Surg., February, 1906.
4. Brit. Med. Jour., June 4, 1898.

of soreness for the first twenty-four hours. The gain in weight and strength is rapid; even in those cases which were apparently well nourished there has been a gain in weight from ten to forty pounds. Attention is called to the tabulated history in which the number of treatments and recurrences may be noted. In 29 cases there has been no recurrence. Marked return of the symptoms has not occurred in any case as all were cautioned to return on the slightest evidence of trouble. That the disturbance has recurred in so few cases has been a constant source of surprise. Among those more recently treated there will undoubtedly be some recurrence, but I think that recurrences will be rare in the cases which have remained free from trouble for two years or more. The cases which I have had opportunity to examine at some time after treatment show that there is a tendency for the dilated esophagus to return to its normal size. As far as possible these cases will be followed up and the ultimate results reported.

TABULATED REPORT OF FORTY CASES OF CARDIOSPASM.

Case Number.	Sex.	Age.	Stage.	Duration, Years.	Date First Treatment.	Number Treatments.	Date, Recur. and Treat.	Number Treatments.	Second Recurrence.
5	F.	58	3	5	2- 6-06	3	0	..	..
6	M.	18	3	½	1-20-06	6	7- 6-06	4	0
7	M.	29	2	3	1- 9-06	6	7- 8-06	3	0
8	F.	21	3	3	2-28-06	3	8- 1-06	2	?
9	F.	30	3	3	5-12-06	2	0	..	..
10	M.	40	3	5	6-30-06	3	0	..	..
11	M.	30	3	18	6-30-06	10	10-27-06	3	0
12	M.	32	3	5	8- 2-06	6	0	0	0
13	M.	33	2	3	8-17-06	10	0	0	0
14	F.	41	3	20	9-20-06	3	0	..	..
15	M.	37	3	5	11- 1-06	7	0	..	..
16	F.	24	3	8	11- 3-06	6	0	..	..
17	F.	40	2	2	2-20-07	4	6- 3-06	2	..
18	F.	42	2	⅔	2-27-07	2	0	..	..
19	M.	27	3	7	3- 4-07	10	0	..	..
20	F.	25	2	1½	3- 9-07	3	0	..	..
21	F.	57	3	2	3-18-07	5	0	..	..
22	F.	38	3	3	3-20-07	2	0	..	..
23	F.	34	3	2	3-29-07	4	0	..	..
24	F.	41	3	26	4-20-07	4	7- 3-07	3	0
25	M.	38	3	7	4-25-07	6	0	..	..
26	M.	29	3	15	4-28-07	8	10-27-07	3	0
27	M.	29	3	2	5-15-07	7	8- 3-07	3	0
28	M.	21	3	6	5-15-07	5	11-11-07	3	..
29	F.	31	3	4	6- 5-07	10	0	..	..
30	M.	38	2	2	6- 8-07	6	0	..	..
31	M.	33	3	1½	7-19-07	5	0	..	..
32	F.	18	3	3	9- 6-07	10	1- 8-08	4	..
33	M.	46	3	12	9-10-07	6	0	..	..
34	F.	38	3	2	10-13-07	6	1- 3-08	3	..
35	F.	32	3	7	10-13-07	3	0	..	..
36	F.	34	3	9	10-19-07	5	0	..	..
37	F.	21	3	3	10-26-07	2	0	..	..
38	M.	47	3	2	12-23-07	3	0	..	..
39	F.	17	2	1	1- 3-08	4	0	..	..
40	F.	62	3	20	1- 6-08	4	0	..	..
41	F.	38	3	6	2- 2-08	5	0	..	..
42	M.	59	3	15	2- 5-08	2	0	..	..
43	M.	19	2	4	2-10-08	3	0	..	..
44	F.	38	3	3	3- 6-08	2	0	..	..

Negri Cell Inclusions in the Salivary Glands.—Hoen, in the *Bulletin of the University College of Medicine*, Richmond, Va., July, calls attention to the demonstration of the Negri cell inclusions in the secreting cells of the salivary glands (parotid) by a special combination stain of hematoxylin, fuchsin, ammonium picrate and gram. While priority of discovery is always of interest, as indicating the investigative trend of any laboratory, it is of minor importance when compared to the significance of the finding of structures, in the organs furnishing the infectious fluid, which are identical, morphologically, with those found in the brains of rabid animals. This discovery practically validates the assumption of Dr. Negri that these bodies, named after him, are the etiologic factor of rabies.

A NEW TECHNIC FOR NEPHROPEXY.

ALEXANDER HUGH FERGUSON, M.D.
CHICAGO.

The purport of this short paper is to describe in as few words as possible the technic of a nephropexy which has satisfactorily suited my cases for more than three years. In the multiplicity of procedures practiced by surgeons and in the many relapses that occur some prominent internists find reasons to discontinue altogether operations for the relief of floating kidney. It is safe to assert that there is no drug or external support that cures a case of this order, while even the simplest fixation by operation relieves many of them. Since applying the technic here described there have been no recurrences.

Floating kidney is no longer a border line disease; it belongs to the field of surgery. A brief survey of its pathology is overwhelmingly convincing of the demands on surgery for its treatment.

Let me make it clear that a kidney should not be insulted by an operation simply because it is extensively floating. I have in mind a case of twenty-five years standing in which the kidneys can be easily made to cross the spinal column, but no operation has been advised for two reasons: 1, No distress is occasioned, and 2, no important urinary changes have arisen.

INDICATIONS FOR OPERATION.

A few of the pathologic indications for operations are:

1. Transitory hydronephrosis due to kinking or folding of a ureter and characterized by intermittent renal colic and other less prominent symptoms, such as an irregularity in the quantity and quality of the urine voided.

2. Chronic hydronephrosis with more or less atrophy of kidney tissue, following a more or less permanent obstruction to the urinary flow through the ureter. The kidney may now become fixed away from its normal site.

3. Unilateral interstitial nephritis not infrequently is caused by the kidney floating. The classic symptoms and signs are present, with constant aching and occasionally colic in the region of the wandering organ.

4. Acute torsion of the ureter, giving rise to great and constant pain with, of course, enlargement and tenderness of the floating kidney.

5. Acute infection of a hydronephrosis—inflammatory symptoms constitutionally, chill, rapid pulse, fever, colic, pyuria, etc.

6. Suppression of urine in a floating kidney with Dietl's crisis bespeaks a condition that should be relieved by operation.

The above mentioned conditions give rise to many local and remote disturbances. In addition to abnormal findings in the urine, e. g., albumin, bile, blood, casts and pus, we often find the patient suffering with painful and frequent micturition; or headache and symptoms of uremia; or gastrointestinal disturbances, dyspepsia, vomiting, abdominal distress, constipation, and even diarrhea.

AN ILLUSTRATIVE CASE.

The nervous condition known as neurasthenia is certainly not benefited by the presence of a floating kidney as a factor, if not in producing, certainly in perpetuating the nervousness when renal colic, etc., is present. Two years ago I fixed the right kidney in a neurasthenic young woman, spare, small and emaciated. In the region of the right kidney there was constant pain, magnified the moment her attention was drawn to it. The-

kidney was tender to the touch all the time whether her mind was on that region or not, and I could not push it into its normal fossa. There was albumin in the urine at all times, sometimes blood and casts. Indican in abnormal quantities was voided with it. Headache, vomiting, constipation, hyperesthesia of the skin over the abdomen, increased reflexes, suspicious mind and constant fault-finding were a few of her symptoms. Many of her symptoms fleeted irregularly and senselessly, but above all there were (with the floating kidney) three distinct permanent findings: 1, Marked tenderness over the appendix; 2, constant tenderness over the kidney, and 3, abnormal urine. On exposing the kidney and finding it in a position of semi-rotation, its pedicle twisted and the little fat around it firmly adherent to its surface, and its parenchyma in a condition of chronic interstitial nephritis, I was convinced that one etiologic factor of her neurasthenia was in our hands. Through

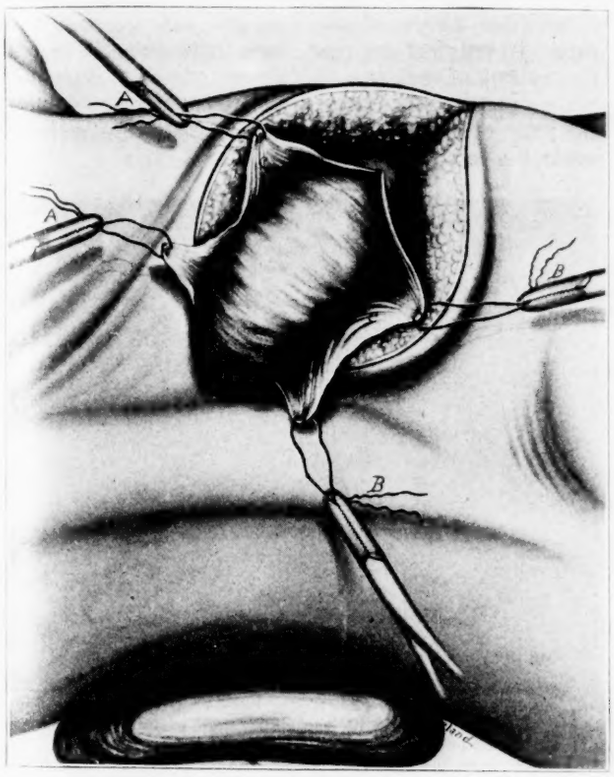

Fig. 1.—Preparing the kidney for fixation. Fibrous capsule (C) split and sutures inserted into the anterior half (A, A) and posterior half (B, B).

the same incision I opened the peritoneal cavity and found and removed another cause of her neurasthenia in the shape of an appendix constricted at its base, dilated distally and full of foul material. She suffers no longer with her side or abdomen.

OPERATIVE TECHNIC.

Prepare the patient for the operation by means of diaphoretics, diuretics and purgatives, and at the same time repleting the body with diluents. Anesthetize the subject, preferably with chloroform; elevate the lumbar region to be operated on, and clean the site of operation afresh with Harrington's solution; incise the skin, subcutaneous fat, and the muscles of this region down to the lumbar fascia, beginning the incision one inch below the tip of the twelfth rib and extending it the full length of the rib and parallel with it. Now, cut the presenting lumbar fascia obliquely below the twelfth intercostal nerves, which brings into sight the perirenal fatty capsule. Expose the kidney by vertically severing this fat. Deliver the kidney into the wound by the traction afforded by several artery forceps clamped on to the fatty capsule. This procedure is facilitated by ventral pressure. Place as much of the fatty capsule below the organ as is easily done where it may act as a support and a normal protection. Reform the normal bed of the kidney if it has been obliterated by fibrous adhesions. This is best accomplished by means of a gauze pledget, grasped by a long curved forceps, and forcibly separate the encroachments of the liver and diaphragm on the normal renal fossa. Posterior and lateral adhesions are cut if necessary. I consider the reestablishment of the renal fossa a technical advance and materially desirable to ensure a successful nephropexy.

To prepare the kidney for fixation, split the fibrous capsule over its convexity to within an inch or so of its

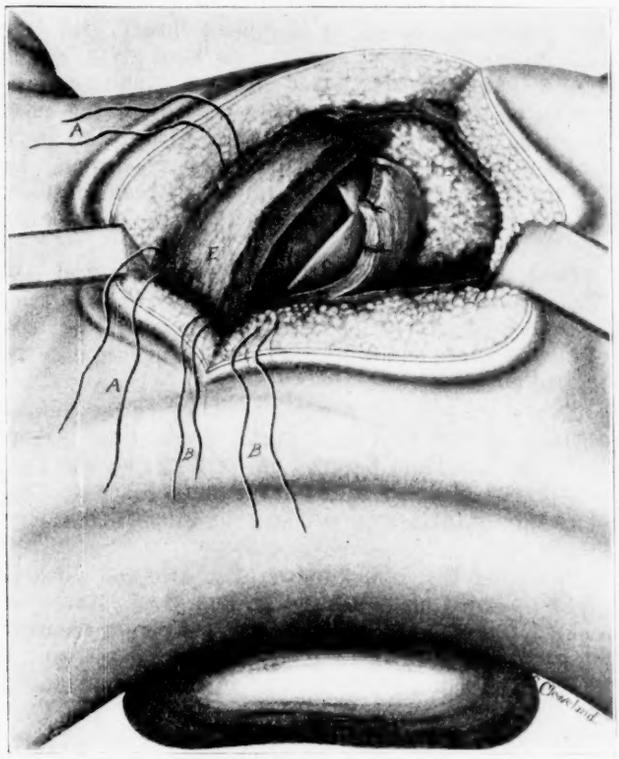

Fig. 2.—Broad thin flap raised from the anterior surface of the quadratus lumborum (D) sutured to the lower end of the kidney. A, A, anterior sutures; B, B, posterior sutures; C, C, capsule of kidney; E, twelfth rib; F, fatty capsule.

lower pole and then peel it off the parenchyma of the organ, except at the lower end. Insert four catgut (No. 1, chromic) sutures, two to the anterior half (Fig. 1, A) and two to the posterior half (Fig. 1, B) of the capsule (Fig. 1, C). With a long, round, curved needle the anterior sutures are passed subcutaneously from within outward and above the twelfth rib, while the posterior sutures are made to penetrate all the structures posteriorly at the upper angle of the wound except the skin. Often two retention sutures are enough. Gently push the kidney into the bed prepared for it and pull on the sutures. The kidney must rest *in situ* without any tendency to displacement after these sutures are tied. Otherwise adhesions in the renal fossa have been overlooked or the fatty capsule has not been properly dealt with. When there is plenty of room the anterior suture or sutures may be fastened to the diaphragm.

In order to deepen the renal fossa and at the same time to support and fasten the lower end of the kidney, raise a broad thin flap from the anterior surface of the quadratus lumborum muscle and suture it to the lower end of the kidney (Fig. 2). The two nerves, iliohypogastric and ilioinguinal, are guarded from injury. Close the wound in the usual manner and leave room for a small cigarette drain at the upper angle of the wound.

4619 Grand Boulevard.

ULCER OF THE DUODENUM,

WITH REPORT OF TWO HUNDRED AND SEVENTY-TWO OPERATIONS.*

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The surgical invasion of the upper abdominal region has gradually enabled us to replace theory with facts, and fallacious clinical observations have given way before actual demonstration of diseased conditions.

One of the most striking illustrations of this newer knowledge is the discovery that three-fifths of all gastric and duodenal ulcers are situated in the duodenum. Until within recent years gastric ulcer has been considered the chief lesion, while reference to a duodenal location has been infrequent.

In a paper read before the American Surgical Association, May, 1904, I was able to report 58 operations for duodenal ulcer, which at that time was 27 per cent. of all the ulcers of the stomach and duodenum on which we had operated.

Two years later, in a paper read before the Surgical Section of the British Medical Association, August, 1906, on "Duodenal Ulcers," our statistics showed about 40 per cent. of ulcers in the duodenum. Since that time more careful investigation places the proportion at above 60 per cent.

In 1906-7 the total number of gastric and duodenal ulcers operated on by us (C. H. and W. J. Mayo) was 193. Of these, 119, or 61.7 per cent., were duodenal, 60, or 31 per cent., gastric, and 14, or 7.3 per cent. of the patients had a separate ulcer on the stomach and on the duodenum.

This does not prove that duodenal ulcers are more frequent now than in the past, but rather that they have been confused with gastric ulcer. In other words, we have in the majority of instances been talking about gastric ulcer, writing about gastric ulcer, and treating patients for gastric ulcer, when the trouble was primarily in the duodenum and not in the stomach.

There are several reasons why the facts in regard to the relative frequency of gastric and duodenal ulcer have not been brought to light. Until of late our most important source of information was derived from postmortem examinations, but such data are often misleading, since by the time the lesion had caused death terminal infections and secondary complications had so obscured the field that the situation of the ulcer could not be accurately determined and it was taken for granted that its location was in the stomach.

The greater number of patients with ulcer of the stomach and duodenum do not die from the disorder itself, but become a prey to intercurrent disease to which their underfeeding and consequent anemia renders them peculiarly liable.

In our earlier work even surgical exploration did not always reveal the truth, and often the location of the ulcer was not accurately established at the time of operation. This is accounted for by the fact that nearly all duodenal ulcers exist in the first inch and a half (ascending part) of the duodenum and more than one-half extend up to or within three-fourths of an inch of the pylorus, while 20 per cent. of them involve the margin of the stomach at the pyloric ring. Many duodenal ulcers, therefore, were formerly put down as pyloric and consequently classed with the gastric.

Differential diagnosis at the operating table between ulcers of the duodenum and those of the stomach near the pylorus may be difficult, but if careful search is made for the pyloric veins (Fig. 1), their exact location can be quickly detected.

Multiple ulcers of the stomach and duodenum are rare. In only 8.2 per cent. were there separate and distinct ulcers of each organ, although on the mucous membrane opposite an ulcer a second ulcer is often found at the point of contact, which we have, therefore, called the *contact ulcer*.

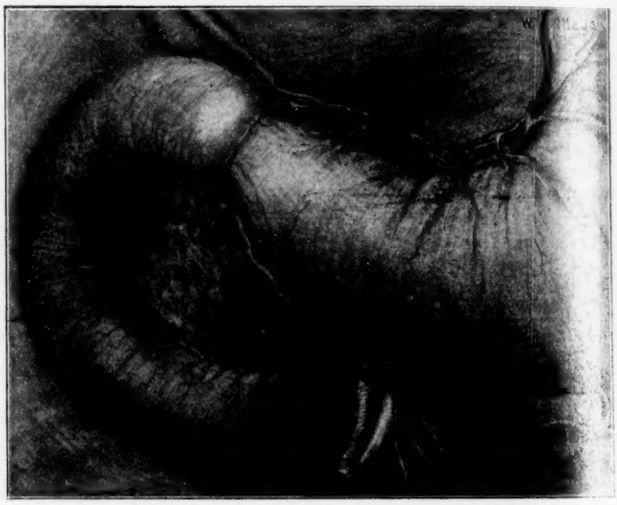

Fig. 1.—The anatomy of the duodenum with special reference (1) to the pyloric veins which accurately locate the pylorus; (2) note the light colored spot on the duodenum just below the pylorus, which may be mistaken for an ulcer when rendered anemic by retraction; (3) crossing of the third portion of the duodenum by the superior mesenteric vessels.

The total number of operations for duodenal ulcer is 272, made on 261 patients. Of these 77 per cent. were males and 23 per cent. females. The preponderance of male over female is hard to explain and is somewhat greater in duodenal than of gastric ulcers.

During 1906-7 60 patients with gastric ulcers were operated on, of whom 36, or 61 per cent., were males, and 24, or 39 per cent., females. In this connection it is worthy of note that, while nearly four patients out of five with duodenal ulcer were men, the opposite was true in gallstone disease, in which more than four out of five patients were women.

A somewhat careful examination of the living subject leads us to believe that, so far as duodenal ulcer is concerned, mechanics may play a part. The first, or ascending, portion of the duodenum in man seems to ascend a little higher than the average first portion in woman; consequently the alkaline, biliary and pan-

* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

creatic secretions may rise higher and more readily neutralize the acid chyme in the first portion of the duodenum in women than in men.

In an early state of fetal existence the duodenum above the common duct is a part of the pyloric end of the stomach. Coming from the primitive foregut, it is associated with the stomach in its physiology and pathology and is not a part of the small intestine, which comes from the midgut. The embryonic stomach is rotated on its right side, and its original posterior wall becomes the greater curvature. The primitive anterior wall, which has become the lesser curvature, retains its normal shape, but a pouch is formed by an expansion or dilation of the primitive posterior wall (greater curvature), and this becomes the fundus or storage end of the stomach. The pyloric end retains its intestine-like appearance but develops a high muscular potentiality. The embryonic duodenum is rotated about the head of the pancreas and becomes more or less fixed by the loss of some of its posterior peritoneum in the lower portion. The duodenum is U-shaped, with its concavity directed toward the left and upward. Its outlet is within an inch and a half of its pyloric entrance. The large caliber-fixed position and trap-like shape of the duodenum make it an admirable mixing receptacle, and syphonage

Fig. 2.—Ulcer of the duodenum with sutures in place for the purpose of enfolding. Posterior no-loop gastroenterostomy indicated.

plays almost as important a part as muscular action in emptying it.

In many animals the entrance to the pyloric end of the stomach is controlled by a true sphincter which does not exist in man, although physiologic contraction graphically marks its situation. The terminal three-fourths of an inch of the pyloric end of the stomach, the so-called "pyloric canal of Jonnesco," may be considered a part of the sphincter apparatus of the pylorus, serving as a passageway only. It is not subjected in the same manner to the traumatism and contact with acid gastric secretions which constitute so potent a factor in the production of ulcer both in the pyloric end of the stomach and the upper duodenum; therefore, primary ulcers in the pylorus and pyloric canal are rare.

Ninety per cent. of gastric ulcers are to be found in the pyloric end, which contains but one-sixth of the gastric mucosa, while the beginning of most duodenal ulcers will be detected at the point of impact where the acid chyme is forcibly ejected through the pylorus against the duodenal wall.

Physiologically the acid chyme in the pyloric end of the stomach stimulates the gastric motor and secretory functions. In the upper duodenum it controls the pyloric apparatus, and the rate of the gastric outflow is regulated by the rapidity with which this acidity is neutralized by the alkaline, biliary and pancreatic secretions.

Pathologically the acid stomach juices, either because of perverted secretion or through lack of local resistance, or both, become the most important factor in the development of ulcers, and largely confines their ravages to these two embryologically associated structures, the duodenum and the pyloric end of the stomach.

The first notable contribution to the subject of duodenal ulcer and its surgical treatment was the presidential address before the American Surgical Association in 1900 by Dr. Robert F. Weir. The total number of cases reported at that time was small, and nearly all of them were acute perforations into the free peritoneal cavity.

Perforation is comparatively common, but fortunately the contents of the duodenum are relatively sterile and small in amount, which favors plastic protection. In the 272 operations (up to June 1, 1908) perforation was found 66 times: 16 acute, with three deaths; 13 subacute, with abscess, no deaths, and 37 chronic protected, with one death.

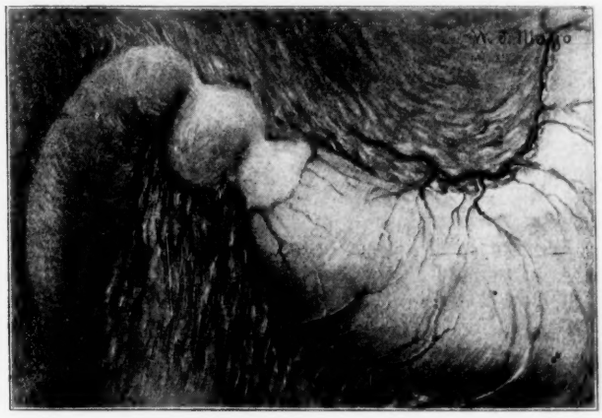

Fig. 3.—Hour-glass duodenum which was treated by excision with end-to-end union between the duodenum and the stomach.

Acute perforation of the duodenum is sometimes diagnosticated as perforative appendicitis, and, as remarked by Codman, it is probable that a number of such acute perforations are not differentiated even at the operating table, and a careful examination of the appendix in some cases of septic peritonitis from supposed appendiceal perforation would show that its peritoneal surface only was involved and that the lesion was in the duodenum.

Out of 27 cases of acute perforation of the stomach and duodenum in which we have operated, 16 were duodenal. In 3 suture of the opening and gastrojejunostomy was done, in 13 suture without gastrojejunostomy, and of these only one required secondary gastrojejunostomy. In addition, 12 subacute perforations were walled off with encapsulation of infected material which had escaped from the perforation and caused a secondary abscess to form, such as described by Lund. All but one of the patients with acute and subacute perforations have remained well, the perforation having seemingly put an end to the disease. In this one exception, although the ulcer was healed, a second-

ary obstruction rendered gastrojejunostomy necessary at a later period.

Acting on this observation, we have four times produced the condition of perforation by cutting out the crater of the ulcer and closing the defect by suture. The results have been good, but sufficient time has not elapsed to know if it will be permanent; but it is a much easier and safer operation than the excision of the entire indurated and cicatricial area about the ulcer which we have heretofore practiced. The extensive operation, however, would be indicated if there was any evidence of malignancy, which, as we have already pointed out, is less liable to take place in ulcer of the duodenum than in ulcer of the stomach.

Chronic protected perforation occurred 37 times. In the chronic form, unlike the acute form, incomplete perforations with adhesions protecting the base of the ulcer seemed to act as an aggravation to the condition, and recurring attacks of local peritonitis were the rule, often producing symptoms resembling those of gallstone disease, for which the manifestations were sometimes mistaken.

A marked peculiarity of duodenal ulcer is the periodicity of the attack, beginning as a rule in early adult life. The subject, usually a male, has an attack of stomach trouble, of which acidity is a prominent feature. This lasts a few days or weeks and is followed by an "almost well" periods of weeks or months. These symptoms recur with increasing frequency, the patient finding some relief from a restricted diet. In the later stages mechanical obstruction often appears. Hemorrhage occurs in about one-half of the cases.

A differential diagnosis between gastric and duodenal ulcer can usually be made. In duodenal ulcer the pain and tenderness, as a rule, extends from the mid-line to the right; aggravation induced by food comes on several hours after a meal, and the patients suffer from a peculiar "hunger pain" when fasting.

Unlike gastric ulcer, duodenal ulcer rarely undergoes carcinomatous degeneration. We have seen but four apparently primary carcinomas of the duodenum. In two of these the origin was uncertain, and in but one did it seem probable that the cancer had developed on ulcer. In five cases, however, we have known gastric cancer to develop on the edge of a duodenal ulcer which involved the stomach at the pyloric ring.

The surgical treatment of chronic duodenal ulcer will usually consist of gastrojejunostomy, preferably by the "no loop" method.

We have made 311 gastrojejunostomies for ulcer of the stomach and duodenum by this particular method, with a mortality of less than 1 per cent., and but three patients have required a secondary operation on the stomach or duodenum for any cause.

If the ulcer has caused hemorrhages we tie the blood vessels leading into it, and with sutures cover with sound tissue (Fig. 2). Should there appear to be any danger of perforation, the site of the ulcer is covered in the same manner as recommended by Mr. Moynihan, who calls attention to the possibility of secondary perforation.

In four cases we have excised the ulcer with direct union to the stomach. This did not prove a very satisfactory procedure, as in two of them we were compelled to do gastrojejunostomy later. In several of the cases, however, we were able to excise the ulcer and close by plastic repair after the Finney plan with good results.

In one case an obstructing ulcer of the duodenum an inch and a half below the pylorus so angulated the duodenum on itself that it was comparatively easy to do duodeno-duodenostomy between the first and second portions of the duodenum. Figure 3 is from a drawing of an hour-glass duodenum, the result of ulcer, which was cured by resection with end-to-end union.

In this connection I wish to again call attention to Figure 1. The arrangement of the blood vessels of the duodenum just below the pylorus are such that if the pyloric end of the stomach is pulled upward rather firmly, as one must often do to obtain a view of the parts, an anemic spot will appear in the duodenum just below the pyloric ring. This appearance is at times very striking and may closely resemble an ulcer. On one or two occasions we were obliged to incise the duodenum at this point before we could be certain that no ulcer existed. The tissues apparently involved are normal to the feel and do not have the milky appearance of the peritoneum of true ulcer, and there are neither adhesions nor other abnormality. If the traction is taken off, it will be seen at once that no ulcer exists.

There has been much discussion as to the curative value of operation for ulcer. From our own experience we can say that the surgical treatment has been most satisfactory. The small esteem in which surgery of the stomach and duodenum is held by many professional men, and the bad results reported, have been largely due to mistakes in diagnosis and unnecessary operations performed where no ulcer existed.

We have, as far as possible, traced our patients with duodenal ulcers operated on in 1906-7. These two years were chosen because this choice eliminated some of the early operations in which the diagnosis was doubtful and the technic imperfect, and it prevented the inclusion of the recent cases that the shortness of time since operation would render valueless to statistics from the standpoint of cure.

Of the 119 patients operated on in 1906-7, we have information of 106. Of these 87, or 82 per cent., were cured; 10, or 9.5 per cent., improved; and 6, or 5.7 per cent., unimproved, making cured and improved 91.5 per cent. The operative mortality in the whole number of cases was 2.8 per cent.

THE DIAGNOSIS AT OPERATION BETWEEN CHRONIC ULCER AND CANCER OF THE STOMACH.*

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BOSTON.

In my experience with gastric surgery, although not extensive, I have been confronted with difficulty in deciding in certain cases between the presence of benign and malignant disease, a decision so important and at the same time so difficult that the subject seemed to me worthy of consideration.

The past decade has been one of great activity in the surgery of the stomach. The work has been prosecuted with marked interest and zeal, and, on the whole, with commendable sanity and judgment. Nevertheless, it can not be denied that, as has been inevitable in any new department of surgical endeavor, we have had to feel our way by constant experiment and modification. Mistaken methods have been tried and found wanting; ex-

* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

cellent procedures have been misapplied, and it is only recently that we have reached firm ground in such important points as the best method of gastroenterostomy and the technic of resection in cancer. There can be no doubt in the minds of those who have followed the work in this field closely that in the early days many operations were done which in the riper experience of the present day would not be deemed good judgment, that gastroenterostomy was done with poor results in such conditions as neurasthenia accompanying gastroptosis, in hemorrhage from medical (acute) ulcer, and other conditions, which experience has taught us to-day, are best not operated on. Medical or acute ulcer, with or without hemorrhage, ptosis attended by neurasthenia, and all non-obstructive lesions of the stomach, except chronic ulcer and cancer, have been practically eliminated from the surgery of that organ. Hour-glass stomach due to contraction of the scar of a chronic ulcer, or to adhesions, is, of course, classed among the obstructive lesions.

British and American surgeons have contributed in no small degree to the rapid advancement of our knowledge of this subject, and among those who by example and precept have been foremost in this field I need only mention such names as those of Robson and Moynihan[1] in England, and the Mayos, Rodman, Finney[2] and Munro[3] in this country.

In regard to cancer of the stomach, there can be no doubt that in operable cases, which means those cases in which the growth with a fair margin of stomach and the involved glands can be removed, the only treatment which gives any promise of relief is in excision, and from my own experience, though small, I am glad to be able to corroborate the statement of Mayo that cancer of the stomach is as amenable to treatment as is cancer of the breast. It is not, however, with the plain unmistakable cancers of the stomach that I wish to deal in this paper, but with those cases—and they are not rare—in which even after all preliminary methods of diagnosis have been exhausted and with the abdomen opened and the ulcer under the eye and touch, we can not distinguish between a chronic ulcer and a cancer. If the treatment justified were in both conditions the same, the fact could make no difference. In fact, no less an authority than Finney makes the statement that in all operable chronic ulcers gastrectomy should be performed, owing to the fact that they are indistinguishable from cancers, and gastrectomy rather than local excision is the best treatment for chronic ulcer.[4]

Perhaps we may come to accede to this statement, in so far as it is applied to nonadherent ulcers so situated as to be easily excised, such, for instance, as saddle ulcers on the lesser curvature; but there is another class of cases, in chronic ulcers on the posterior surface and at the pylorus and extending into the duodenum, when the determination of malignancy is of greater importance. In fact, it seems to me that these cases fall into two distinct classes, namely, (a) saddle ulcers of the lesser curvature; and (b) ulcers at the pylorus extending onto or from the duodenum and adherent to liver or pancreas.

Cases of the second class are not inoperable, by which Dr. Finney evidently means incapable of excision, but their excision is difficult and attended by a risk which we should be willing to accept in cases of malignant disease but not in the treatment of simple ulcer, especially when we consider the many reported cases of simple ulcers in this situation cured by gastroenterostomy. Robson goes so far as to say that in adherent ulcers at the pylorus, even when they are greatly thickened and there is a suspicion of malignancy, gastroenterostomy should be performed, and he refers to a number of cases in his experience in which this procedure has proved curative. His experience is confirmed by many others.

Anatomic as well as clinical evidence of the cure of these patients is not wanting, from second laparotomies and occasionally from autopsy, as in Hoffmann's patient who died of strychnin poisoning two years after a gastroenterostomy for indurated ulcer at the pylorus, in which the autopsy showed a smooth scar, the ulcer having completely healed.

Hoffmann,[5] however, while presenting the well-known advantages of gastroenterostomy over excision in most cases, states that if appearances at operation strongly suggest malignancy, resection should be done. He applies this statement to indurated ulcers, both at the pylorus and on the lesser curvature. He reports 52 cases of benign disease of the stomach from the Graz clinic.

Von Eiselsberg,[6] speaking of stenosis of the pylorus, advises gastroenterostomy, but admits that in many cases it is difficult to decide whether an ulcer or a carcinoma is present, and states that under these circumstances, if the patient is strong enough, excision should be done. He reports in this paper thirty-nine gastroenterostomies for benign pyloric stenosis with one death, and eleven resections for benign disease with two deaths.

Hochenegg (Schulz[7]) performed gastroenterostomy in two cases in case of doubt, one because the patient was in poor condition, the other because of adhesions. Both patients did well at first, but died within twelve months after operation, and in one an autopsy showed cancer developing on an ulcer base.

On two occasions, however, I have subjected patients with chronic ulcers at the pylorus and extending onto the duodenum to a difficult and tedious excision, only to find that the ulcers were non-malignant. Although both patients recovered, one died four months later from contraction of the new stoma, which, owing to the length and difficulty of the operation, had been made by a Murphy button; this length of the operation was partly due to the fact that the common duct was accidentally divided and had to be reimplanted in the duodenum. It is in this class of cases that laboratory studies are of greatest importance and therefore should always be made before operation. In these cases of adherent ulcer, in which the question of excision is a delicate one, the presence and amount of free hydrochloric acid may aid in the decision, and so far in my cases has proved a good guide.

1. Moynihan, B. G. A.: A Review of 59 Cases of Cancer of the Stomach Treated by Operation, Tr. Clin. Soc. Lond., 1906, xxxix, 84-95.

2. Finney, J. M. T., and Friedenwald, I.: Unusual Case of Ulcer of the Stomach, Boston Med. and Surg. Jour., 1907, clvii, 393-395.

3. End Results in Benign Lesions of the Stomach Surgically Treated, Am. Surg., 1907, xlv, 818-826.

4. A parallel example of the induration due to chronic subperitoneal inflammation simulating malignancy may be found in those tumors of the cecum which by their stony hardness and appearance so simulate carcinomata, and which disappear so quickly after an inflamed appendix has been removed from among their adherent coils.

5. Haben wir in Zukunft günstigere Resultate von der chirurgischen Behandlung des Magencarcinomes zu erwarten, und besteht ein Zusammenhang zwischen klinischer Krankheitsdauer, und Radikal operabilität? Mitt. a. d. Grenzgeb. d. Med. u. Chir., Gedenkband, v. Mikulicz, 1907, pp. 879-892.

6. Die chirurgische Therapie des Magenulcus, Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1906, xvi, 1-18.

7. Zur Statistik der Gastroenterostomien bei benignen Magenerkrankungen, Deutsch. Ztschr. f. Chir., 1906, lxxxviii, 494-552.

In regard to cases of the first class, the saddle ulcers of the lesser curvature, my experience has been different.

A gastroenterostomy for a supposedly benign saddle ulcer of the lesser curvature failed to cure one of my patients, who gradually failed and died in a few months, probably from extension of a gastric cancer; and an excision in a similar case of a supposedly benign ulcer, which was subjected to an immediate microscopic examination, showed the presence of cancer and enabled a more extensive excision to be performed at once, with the gratifying recovery of the patient. An excision of a saddle ulcer of the lesser curvature with a wide margin of stomach with enlarged glands thought to be a cancer and therefore dealt with radically, resulted also favorably to the patient. Another patient, in the hands of a colleague, who came under my observation, and on whom a gastroenterostomy was performed for a supposedly benign ulcer of the lesser curvature, had a recurrence of symptoms a year or two later, and a second laparotomy disclosed a cancerous peritonitis.

Recently a patient on whom I performed a gastroenterostomy for a chronic saddle ulcer of the lesser curvature three years ago, excision being impracticable on account of adhesions to the liver, came to autopsy, and examination showed a cancer. In this case, undoubtedly, a cancer developed on an ulcer base, a condition to the frequency of which attention has been so often called in recent years by Mayo, Graham and others, and one which is a further argument for excision whenever possible. In these cases the presence or absence of hydrochloric acid has been an unsafe guide, and I believe these ulcers should all be excised, regardless of laboratory findings.

It is useless further to multiply examples which might demonstrate our inability to distinguish cancer from chronic ulcer. The practical questions for us are: First, how near can we come to a diagnosis and what aids can we summon before and during operation? Second, the aids failing us, how are we to proceed under the variable and deceptive conditions met with during operations? Partly on one's own experience, guided, of course, by the written and spoken advice of others of perhaps greater experience than one's self, but after all chiefly by one's own personal opinion, must the question in each case be settled. An attempt to formulate the principles which should guide us may well be prefaced by a brief statement of the clinical pathology of the disease.

With the superficial medical ulcer which involves the mucous membrane only, frequently bleeds and often is the cause of pain, but is curable under judicious rest and feeding, we have not to deal. Whether such an ulcer heals under medical treatment or becomes chronic, i. e., surgical, depends on whether sufficient rest can be given the ulcer without starving the patient and leaving the general nutrition so poor that the tissues can not heal. I may remark in passing that now that the long periods of rectal alimentation (essentially absolute starvation) in the treatment of this disease have been given up, a practice which often exhausted the patient to a point where the tissues were so devitalized that healing could hardly be expected, and feeding almost from the first has been adopted, we shall probably find fewer chronic or relapsing ulcers to operate on. Food which gives the maximum of nutrition with the minimum of work to the stomach we have learned may be given almost from the first, and with careful diet and supervision after the acute symptoms have disappeared and the patient discharged from the hospital, I believe we shall have less chronic ulcers develop. This is only one of the many beneficial results from the success in prescribing dietetic regimens which medical men are attaining, as the result of special attention and study, and which have already given such remarkable results in obesity, diabetes, etc.

To return, however, to the subject, the relapsing, chronic, or surgical ulcer invades the muscular layer of the stomach until a definite patch of varying size becomes converted into scar tissue, white, of stony hardness, and of varying thickness, according to the time it has existed. Such a scar has elevated indurated edges where the infiltrated, ulcerated mucous membrane surrounds it, the edges may be excavated,, so that any one may be defied to tell by touch or inspection whether they are cancerous or not, and glands may be involved and also indurated, so as still further to simulate malignancy.

Of the two large saddle ulcers above referred to, which I excised and which looked almost exactly alike, one being simple and the other carcinomatous, the cancerous ulcer was the least indurated and least malignant looking of the two. Excision of a portion of the ulcer for pathologic examination is undesirable, because it complicates the technic, because of the time wasted in waiting for a report, and because of the danger in case of malignancy, of infecting the open wound with cancer cells.

Excision of the entire ulcer and immediate examination of the specimen may help, and, in fact, in my second case the report of cancer enabled a more extensive resection, with the happiest results. However, even this method may fail, for the pathologist may have to cut and examine several portions of ulcer before he arrives at a malignant part and the delay may be too great.

In doubtful cases two facts may help us: one, that cancer rarely starts from the duodenum, so that if the duodenum seems primarily involved the induration probably is benign; and second, that benign ulcer perforates early as compared with cancer. So that subacute perforation with adhesions to the liver or pancreas in a case early enough to be a doubtful one points toward benign disease. The very induration attending subacute perforation may be the reason for the simulation of malignancy, or, to put it differently, the very conditions which render excision difficult may point to its being unnecessary.

In the second group of cases mentioned above, in which I excised two moderately adherent ulcers of the pylorus and first part of the duodenum, the situation was as follows: The clinical evidence and laboratory tests, hyperacidity, presence of free hydrochloric acid, etc., pointed in both cases to chronic ulcer. The induration and thickening of the pylorus and first part of the duodenum was of such a character as to suggest malignancy. In one I had previously (four weeks before) performed a gastroenterostomy without relief and the growth had increased in size. I felt that both lesions were probably malignant and performed resections, made difficult and dangerous by pancreatic adhesions, only to have both reported benign. In the first case I should have allowed the facts that the clinical and laboratory tests pointed to a benign condition and that carcinoma of the stomach rarely arises from the duodenum influence me; and in the second case the same factors, plus the knowledge that the inefficiency of the gastroenterostomy was in part, because the lumen was too small or, in other words, a technical error. I performed Rodman's ideal

operation, excision of the ulcer area, but in the presence of adhesions which made excision rather dangerous, and in the face of the fact that the very ulcers which are most amenable to healing under gastroenterostomy are those of the pylorus. I think under ordinary circumstances a gastroenterostomy is to be preferred in such situations.

I have performed seventeen gastroenterostomies for indurated thickened ulcer at the pylorus, some of which were bleeding freely at the time of operation, with one death and with uniformly good results in sixteen cases; and also on three ulcers at the lesser curvature adherent to the liver (perforated chronic ulcers), with permanent cure.

Of seven cancers of the stomach in which I have performed partial gastrectomy, two patients died as the result of the operation, one of the deaths occurring many years ago before I was acquainted with modern technic, and the other in a case in which an excision was undertaken in the presence of too great glandular involvement, after gastrectomy and enucleation of large masses of glands around the common duct and pylorus, accompanied by considerable hemorrhage. All the other patients were benefited by the operation. The most extensive lesion was in an old man of 68, in whom two-thirds of the stomach was removed; he gained twenty pounds and lived in comfort for a year. The least extensive lesion was a cancer of the lesser curvature; the patient was only slightly relieved and died in seven months. One patient is alive and perfectly well two years after the operation and has gained forty pounds; one is alive and perfectly well eight months after the operation and has gained forty-six pounds. My colleague, Dr. Nichols, has a patient in whom two-thirds of the stomach was removed, and who is well two years later.

If I may add my three cases of partial gastrectomy for benign disease, we have nine cases with two deaths, and considering the reasons for those two deaths I feel that the operative risks are not great. If I can keep from taking desperate chances in inoperable cases I feel that my mortality rate ought to be good.

The comfort of the convalescence from the gastrectomy cases, both benign and malignant, has been remarkable. Both the Billroth No. 11 and the Kocher method have been followed, but the finer points of technic have been, in the main, those advocated by Mayo[8] in 1906, which is, I think, a classic and for which we owe him a very great debt.

Such success as we have had in cancer cases emphasizes the importance of making an accurate decision in early cases, which are the very ones in which we can hope for most and perhaps may justify the writing of this paper. I am aware that I have suggested no certain method which will accurately decide for us in doubtful cases. No harm can be done by an attempt to set forth the principles which should guide us in making these very important decisions, and for this reason, and in the hope that the discussion may throw more light on the situation than I have done, I am emboldened to present this paper.

CONCLUSIONS.

In certain cases of indurated ulcer of the stomach the diagnosis between benign and malignant disease may be impossible, even with the abdomen opened. These are the early cases, in which the diagnosis of early cancer is important, as enabling thorough removal.

These cases, broadly speaking, fall into two classes:

1. Indurated ulcers (usually of the lesser curvature), which are movable and free and may be benign or malignant. Here, even if the tumor is benign, gastroenterostomy is often unavailing, and partial gastrectomy should be performed. Excision here is easy and safe.

2. Indurated ulcers of the pylorus often extending from the duodenum and adherent to the pancreas or left lobe of the liver. These are usually benign; excision is difficult and gastroenterostomy is safe and should usually be performed rather than excision.

In Class 1 excision should be done regardless of laboratory findings. In Class 2 the laboratory findings are important and usually reliable.

The responsibility of leaving a tumor which may be malignant is so great, however, that all diagnostic aids should be invoked, and in case of doubt excision, though at some risk, may be performed. The surgeon must decide in each case whether the risk lies in performing excision or leaving a tumor which may be malignant.

529 Beacon Street.

8. Technic of Gastrojejunostomy, Ann. of Surg., April, 1906.

DISCUSSION.

ON PAPERS OF DRS. MAYO AND LUND.

DR. ALEXANDER HUGH FERGUSON, Chicago: I think there is no prominent surgeon in America to-day who would even dream of asserting that he never errs in making a diagnosis between carcinoma and chronic ulcer of the stomach. There are certain things, however, that we see and feel at the time of operation, irrespective of the history of the case before the patient comes to the operating table, which lead the surgeon to lean on one side or the other in his diagnosis of the border-line cases. For instance, one opens the abdomen and finds at once a large amount of straw colored fluid coming through the incision. It evidently is a case of neglected carcinoma, a very far advanced case. We do not very often open up the abdomen in such cases to-day, but we have in the past. If we see extensive adhesions and if we pass in the hand and feel them without feeling a tumor, the diagnosis is rather of inflammation that has disseminated itself and caused these adhesions to form. If, however, we find thick, continuous, friable adhesions between one viscus and another, between the stomach and the transverse bowel, between the stomach and the parietes or liver, then we may be sure that points to carcinoma. This, too, would be a very late and inoperable case. Often in the early case in which the tumor mass is movable we can not make a diagnosis even when the ulcer is seen and felt, for malignancy may be just beginning.

There are certain ways, however, in which we may proceed to determine what we have in hand, and that is to pass the entire hand into the abdomen, exploring the lymphatics and organs. The anterior surface of the stomach can be palpated with one hand, but when the posterior surface is to be palpated both hands must be used. By careful palpation we may be able to determine a tumor mass where we did not suspect it, located at some place in the stomach wall, that gave but meager symptoms or signs of such an advanced condition. When, however, it is in the pylorus, obstructive symptoms and signs tell whether it is carcinomatous or due to ulceration in a much earlier stage.

What does all this teach? It teaches that patients who suffer with gastric symptoms during the carcinomatous age ought to be explored early, because only by such early explorations can the pathologic condition be removed, and it is only of temporary use to do a gastroenterostomy.

DR. VAN BUREN KNOTT, Sioux City, Iowa: I take it that the differential diagnosis is not so important in these extremely late cases referred to by Dr. Ferguson as it is in the earlier cases, in which there is a large infiltrated area at or near the pyloric end of the stomach. It is well known that the preoperative diagnosis between carcinoma and ulcer of the

stomach is extremely difficult: in fact, it is one which we very frequently fail to make. Men of experience are equally well acquainted with the fact that the diagnosis at operation, with the abdomen open, is, in many instances, practically impossible. Finney last month reported two cases before the American Surgical Association, in which at operation, with the abdomen open, he was unable to decide whether he was dealing with a carcinoma or an ulcer at the pylorus. Frozen sections also often fail to determine whether the growth is benign or malignant. This is a striking instance of making a differential diagnosis under great difficulties. If it be true, as Dr. Mayo told us, in accordance with the statistics of many observers, that implantation of carcinoma on ulcer is found to occur in over half of the cases of ulcer of the stomach, it would seem that the differential diagnosis at operation between large infiltrated inflammatory growths at the pylorus, between benign and malignant growths so situated, is not important, because in cases amenable to radical operation we should be conserving the best interests of the patient by doing a pylorectomy or partial gastrectomy and cutting out the growth, thus doing away with the possibility of implantation of carcinoma or ulcer or a recurrence of the growth and troublesome symptoms.

The statistics of pylorectomy to-day are very much worse than those of gastroenterostomy. Every one has done a pylorectomy in cases in which a growth suspected of malignancy was removed and found to be benign, and every one has also had the experience of doing a Rodman operation for ulcer and finding that the mass removed was a tumor of a malignant character.

DR. PARKER SYMS, New York: Gastric and duodenal ulcers are so closely allied clinically and surgically that they may practically be considered to be identical. The pyloric part of the stomach is a common seat of ulcer, and the upper one and a half inch of the duodenum is the common and usual seat of duodenal ulcer. Of course, in this discussion we may leave out of consideration the superficial acute ulcers common in young women, and which may be treated properly by dietetic and hygienic means. We are considering the chronic, deeply-situated ulcers, the indurated ones that do not tend to get well; it is these ulcers that present the greatest immediate and remote dangers.

Every case of gastric and duodenal ulcer should be recognized and cured. Attempts to effect a cure by hygienic and dietetic means should be limited to a brief space of time, and in all cases in which symptoms persist and a recurrence takes place operative procedures should be resorted to because the results will be much better than if a so-called expectant or conservative treatment is employed, and because the dangers of an uncured ulcer in this region are too grave to be neglected. Cancer of the stomach is a disease which can hardly be cured when it can not be recognized without opening the abdomen; therefore, our only means of curing this disease is to operate at a time so early that the diagnosis could not be made by the usual method.

Other dangers of duodenal ulcer are perforation and hemorrhage. There is no question that the vast majority of cases of ulcer of the duodenum and stomach may be cured by gastroenterostomy, and the preferable method of performing the operation is the one described by Dr. Mayo. We must not, however, neglect the fact that the end results are yet to be determined, and the argument put forth by Rodman calling for pylorectomy and removal of the tissue which may later become cancerous is too strong to be neglected.

DR. N. B. LEGGETT, New York: I shall confine my discussion to the question of the function of the stomach in the presence of an open pylorus. The details which I am going to present are elaborated from the result of a series of experiments carried on at the Surgical Research Laboratory of Columbia University during the past winter. A gastroenterostomy was done on seventeen dogs, and by means of a simple probang devised by the laboratory student assistant, Mr. A. G. Sullivan, a "B. B." shot, after being attached to a strong linen thread, was introduced into the stomach of each. The probang consisted of a heavy piece of wire strong enough to reach from mouth to stomach and twisted at one end. The other end was cast into a handle of lead. In use the string was threaded through the eye and the attached shot is brought up against the metal. The dog was then anesthetized, its mouth held widely extended and its neck straight. The probang and shot thus passed readily through the cardia. At this moment the handle, which was purposely made heavy and of lead, was sharply struck with a heavy metal instrument. The blow was transmitted to the shot, which flew off into the stomach, carrying the string with it. The probang was then withdrawn, a needle threaded to the string, passed through a fold in the base of the pharynx and there knotted. Two days later the dogs were killed with ether. Clamps were placed on the cardia, the pylorus and the intestine aboral to the stoma to prevent the string from slipping during the removal of the specimen. After hardening, the specimens were dissected, so as to show the position of the string as indicating the path taken by the bullet, and mounted.

There are obviously four ways in which the shot may travel, namely: first, through the pylorus and on down into the intestine past the stoma; second, through the pylorus and into the stomach by way of the stoma, namely, a direct cycle; third, through the stoma and into the intestine, the supposed normal course; fourth, through the stoma and back into the stomach, a retrograde cycle. All the stomata were made on the anterior aspect of the stomach. Of seventeen specimens studied, twelve were found to have the stoma within an average of 5 c.c.m. of the pylorus, while in five the stoma was located at the most dependent portion of the stomach. On account of the variation in size of the animals operated on, the actual distance from stoma to pylorus would not create a correct impression. Of the twelve stomata placed near the pylorus, in five, or 41 per cent., the linen thread passed through the stoma. In seven, or 59 per cent., it passed through the pylorus; in one of these, two strings were fed, one passing through the pylorus and the other through the stoma. The string passing through the stoma made two complete cycles. In two cases in which the string passed from the stomach through the pylorus and again into the stomach through the stomach, the cycle was complete, and in one case a string making an exit from the stomach via the pylorus made three complete cycles. In this case the stomach was greatly dilated. Of the five specimens in which the stoma was located at the most dependent point of the stomach, the position of seven strings was to be studied, because in one case three strings were fed. In this case two strings were found to have passed through the stoma, one making a complete retrograde cycle twice. The third string had passed through the pylorus, making one direct cycle. In the five cases, four strings were found to have passed from the stomach by way of the pylorus and three by way of the stoma.

A point of interest, because it suggested a possibility of obstruction from spur formation at the point of the stoma, was the fact that when the cycle was direct, namely, through the pylorus and back again into the stomach through the stoma, the stomach was found to be uniformly dilated. In an anterior gastroenterostomy the stoma is used almost as frequently if placed at the dependent point of stomach as if near to the pylorus. Roughly speaking, the unobstructed pylorus is used to transmit one-half of the shot swallowed, the remaining half passing through the stoma. Whether this proportion holds true for the semi-solid chyme can probably be determined by feeding string without shot.

DR. F. B. LUND, Boston: The problem of distinguishing between an induration due to chronic ulcer and that due to carcinoma is to determine between actual tissue growth and deposit by inflammation, as in appendicitis where the appendix, buried under an inflamed cecum, has given rise to appearances of malignancy and where recovery occurs after removal of the appendix. I have seen such cases of appendicitis where the cecum was excised on account of the simulation of malignancy. Dr. Mayo's statement that many pyloric ulcers are really duodenal ulcers is a help in the decision how to deal with these cases because duodenal ulcers rarely become malignant, while resection of movable ulcers anywhere in the stomach is simple and safe if one follows the technic he so well demonstrated for cancer of the stomach.

In perforating ulcers of the duodenum the tenderness is often over the appendix and not over the site of the perforating ulcer. I attribute it to the fact that the greatest tenderness is at the edge of the inflammation. Cases in which a perforating ulcer of the duodenum was mistaken for appendicitis are the cases in which the starvation treatment never produces a cure, so that the operator who waits for the case to quiet down before operating willl be disappointed.

DR. WILLIAM J. MAYO, Rochester, Minn.: There are a few points to which I wish to call attention. First, duodenal ulcer is more frequent than gastric ulcer; second, although we are told in the text-books of the past that 60 per cent. of gastric and duodenal ulcers occur in women, that the contrary is true; third, if one does a gastroenterostomy for ulcer without proving at the operating table that the ulcer actually exists the operation will probably do the patient harm.

I think that the surgical cure of duodenal and gastric ulcers is certain in at least 80 per cent. of cases, and in 10 per cent. more the patient will be so much benefited as to be well satisfied with the result. Finally, I plead for earlier recognition of cancer of the stomach, and I would emphasize again the fact that a very considerable percentage of cases of cancer of the stomach begin in ulcer. There should be two classes of patients turned over to the surgeon promptly—those with tumor of the stomach and those with obstruction. Why is it that in the great hospitals, cases of cancer of the stomach are found in the medical wards? Can one do any more medicinally in this disease than can be done in cancer of the breast, lip or uterus? A suspicion of cancer makes the case a surgical not a medical one, and the patient should be sent to the surgical side at once.

Again, if a tumor is present, what difference does it make whether that tumor is due to inflammation surrounding a thickened chronic ulcer that is liable to undergo carcinomatous degeneration, or whether cancer actually exists at this time? You will be surprised in some instances at the length of time patients are worked over for a diagnosis with a palpable tumor that, perhaps, they have discovered themselves. Let me say, too, that the moment you make a diganosis of tumor, no matter what its nature may be, you must consider the case a surgical one, and the surgeon should be called in consultation. I have yet to see the case of mechanical obstruction that can be cured by medical means when it is caused by chronic ulcer. Chronic ulcer producing obstruction can be carried along in various ways, but it can not be cured. When mechanical obstruction is present it is easy to tell by means of the stomach tube. Give the patient raisin cake or some raisins at bedtime. Pass the stomach tube in the morning and see if you can find the skins.

STATE RECIPROCITY IN DENTAL PRACTICE LICENSING.*

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Some wise man has said that no question is ever finally settled until it is settled right. The fight over human slavery went on for generations and even centuries; but the civilized world has come at last to realize that every man is born free and has certain inalienable rights to "life, liberty and the pursuit of happiness." The innate love of fair play which persists in the human heart, even when oppressed and abused, will sooner or later assert itself, and society will come, though by devious ways, to do justice. It is faith in the final righteous verdict of society that inspires confidence in the ultimate success of the effort to secure uniform state laws governing the practice of the dental profession.

* Read in the Section on Stomatology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

In order to reach a clear understanding of the difficulties which confront any attempt to secure that for which so many of the dental profession are striving, it is necessary to consider the historical development of our form of government. When the thirteen feeble colonies emerged from the exhausting struggle for independence, they were indeed free and independent, not only of foreign powers but also of each other. There was no central head provided by the articles of confederation under which the war for independence was carried on. When peace had come it was seen that there was nobody to regulate commerce with foreign powers, or to make levies on the several states to maintain the credit of the nation. It was because of the absence of this central authority that the constitutional convention was called, issuing in one of the most remarkable documents which the world knows—the Constitution of the United States.

But man is not infallible, and the instrument created by our fathers could not make provision for every contingency that might arise in the development and progress of a people. So it has come to pass that the real union of the states has been an evolution rather than a creation. Just what right inheres in the individual state must be settled as the unfolding life of the nation brings forward one question after another for consideration and settlement. Massachusetts at an early day, and the southern states later on, claimed the right to withdraw from the union, a claim that was only settled at last and forever at the cost of untold sacrifice in money and human lives.

And even now the task of unifying independent states is going on. It is not yet decided what power, state or national, shall be exercised in the final control of our railways. The nation is to-day in a state of transition, but every step that is being taken leads toward the centralization of power. It is this amalgamation of state sovereignty with national control which renders difficult the task of securing uniformity in laws governing the practice of our profession. The states, very justly, are jealous of their rights. They cherish most fondly the right to say what may or may not be done within the confines of the particular commonwealth. They have the authority and purpose to exercise it. Possibly in this tendency an expression of fundamental human nature may be recognized and therefore escape severe blame.

In the discussion of any subject it is necessary, first of all, to state clearly that which is to be considered. The investigator may arrive at this in the present case by asking himself what conditions in the practice of the dental profession need to be remedied, so far as this practice is affected by the division of this country into states. We have long since come to be a nation, but our nationality has not extended its sway over all the activities of all citizens.

A dentist who has practiced successfully for ten years in Illinois may not move into the neighboring state of Wisconsin and continue the practice of his profession without being compelled to undergo an examination before the board of the latter state. His skill, his experience, the reputation which he has established, although it be world-wide, go for nothing. The fact that the examining board in Illinois has testified to his fitness to practice does not count. Perhaps such a state of affairs finds one of its most ridiculous illustrations in the methods which once obtained (and may yet, for all I know to the contrary) in the matter of teachers' certificates in the different counties of a given state. A teacher was

examined by the county superintendent of one county, passed most creditably, was granted a first-grade certificate, and then was engaged as teacher by a school in a neighboring county. Was the certificate honored? Sometimes, by some large-minded man. But as a rule the teacher was compelled to undergo another examination before being permitted to instruct the youth of this county how to read, write and cipher.

There are two reasons why the prevailing method is unsatisfactory. First, it involves an unnecessary humiliation. For a man in middle life, who has been in active practice for twenty or twenty-five years, to be brought before a board and compelled to answer questions concerning his profession as though he were suspected of being an impostor, trying to palm himself off as something he is not, is to subject him to uncalled-for indignity. In the next place, it is quite probable that the examination will not serve to reveal the real knowledge and ability of the one examined. The phraseology of the text-book, the terminology of the lecturer, do not remain distinct in the mind of the busy professional man for any great length of time; but the latter has gained instead that which is of far greater worth than accurate definition, and that is the ability to do. Many a man in every profession, who would be vastly troubled to describe in fitting terms the best way of doing a given task, can roll up his sleeves and do the task to perfection. The fact that a man is a parrot and can glibly repeat what he has heard does not constitute overwhelming proof that he is competent to practice his profession. The present custom largely discounts practical ability and puts a premium on memory.

There is a profession the members of which undertake to care for the most important interests of man. Surely no profession should be more carefully safeguarded than that of the Christian minister who deals with moral and spiritual issues. If the state is called on to protect the interests of its citizens at any point, it certainly should be in the teaching which goes to make or mar manhood and womanhood. But the minister who is ordained and commissioned to his work in a New England state may go anywhere in all the length and breadth of our land and be sure of recognition of the standing which has been given him. I imagine that if our preachers were compelled to undergo an examination in theology every time they remove from one state to another, pastoral changes would be far less frequent than they are at present.

There is a very general feeling that the present state of affairs as regards the right of interstate practice in our profession is far from satisfactory. What can be done to remedy existing conditions? Three possible lines of action suggest themselves. If each state would recognize the validity of the licenses granted in every other state the present difficulty would disappear. An objection to this, in the minds of many, lies in the fact that the conditions to the granting of a license are so dissimilar in the different states. It is said that a man could pass the examination in a state where the requirements are not sufficient to insure competency, and then proceed to another state where the standard of the profession is high and enter at once on the practice of his profession. In this way incompetents and even charlatans would be given standing in states that have passed through severe struggle in bringing the profession to the high position that it now occupies. On its face that seems to be a serious and valid objection; but its force will depend on the extent to which insufficient requirements obtain in various states. That can be determined only by collating the laws bearing on this subject, and such an examination will go far toward allaying our fears. While it is true that some states have more stringent requirements than others, it is also true that few, if any, states put a premium on inefficiency. It stands to reason that each commonwealth desires to conserve the interests of her citizens. She is not willing to hand even the man with a toothache over to the tender mercies of an ignoramus. She also has a measure of state pride which forbids that she should allow a free course to ignorance while her sister states are insisting on capability. But this unlikeness in state laws, be it greater or less, suggests a second course of procedure.

Uniform laws should be secured in the different states of the union, so far as these laws bear on the practice of dentistry. Were this to be done, the only objection to the recognition of licenses granted by a sister state would disappear. There is absolutely no reason for having as many different dental laws as there are different states, except it be the American mania for legislation. It is said that when an Englishman has a spare hour he says to his comrade, "Let's go out and kill something." When the average American has a bit of leisure he says to his friends, "Let's go out and legislate." Americans have a passion for making laws, and each state seems to have a consuming desire to make laws unlike those of any and every other state. But what is there about the teeth of a Californian that differentiates him from a Georgian? Why should the man who lives in Minnesota need a different set of laws from the man in Kentucky to protect him from the ignorance or the laziness of the dentist? Why should not one standard prevail from the Atlantic to the Pacific and from the great lakes to the gulf? There is no reason why this should not be, except the stupendous difficulty of securing the necessary legislation. It might be brought about in half a dozen or even twenty states after prolonged endeavor, but it would be a herculean task to induce all the forty-six free and independent commonwealths to consent to such legislation.

This leads up to the consideration of a third possibility—that of securing federal legislation. At the risk of seeming to trench on the honored doctrine of "state's rights," I shall venture to say that this seems to me the most feasible plan of procedure. It would be vastly easier to secure legislation from the Congress of the United States, one body, than from the many bodies exercising legislative functions in the different states. The law-making body for the nation could deal with the whole matter in a comprehensive manner impossible for the legislatures of the separate states. By the appointment of a federal commission having general supervision of all matters pertaining to the preparation for and practice of the dental profession, not only could uniformity be secured, but the profession could be placed on a secure and honored basis. Such a commission could prescribe the standards for admission to and graduation from all dental colleges and formulate the conditions to practice in every place in all the land. Does any one doubt the effect of such a provision? It would dignify our profession, it would do away with present embarrassment, it would beget needed *esprit de corps.*

With reference to any such proposition as this which I am discussing, two questions may fittingly be asked. First, would any person or any interest be injuriously affected by that which is proposed? Would uniform laws for the profession operate to the detriment of any mem-

ber? Certainly it would not work injury to the profession as a whole, but it is more than possible that practitioners here and there have the feeling that their particular chance for making a livelihood would be affected. It is difficult, if not impossible, to see how this could really be. Such laws as are proposed would not make entrance on the practice of the profession any easier than it is now. The bars would not be thrown down for incompetents to enter. As a matter of fact, it seems very likely that such a federal commission as is proposed would remove from the profession some of the weeds which are now allowed to grow untroubled. How often does it happen that an unethical member of our profession is brought up short and debarred from practicing? Do we not all know of men whom the honorable members of our profession refuse to recognize as brother practitioners, who live by bamboozling a credulous public, whose advertising and self-puffing is nauseating to every decent dentist, but who go on their way fleecing the public year in and year out, undisturbed? It is as certain as anything can be that a national commission would not tolerate that which is the shame of our profession to-day. For this, if for no other reason, I long for the day when the chaotic conditions which now obtain shall be supplanted by the order which would come with a federal commission.

But there are certain sections of the country in which the members of our profession seem to be panic-stricken whenever uniform laws are mentioned, lest their communities should be overrun by a horde of "one-lung" dentists. It is well known that persons who have reason to believe that they either have or are threatened with tuberculosis frequently betake themselves to those sections of the country offering the most favorable climatic conditions. The assumption is that if Arizona and California and New Mexico and Texas do not guard their borders against the incursion of consumptive dentists, there will pour in on them a mighty stream of expectorating practitioners. The vision which is conjured up by the riotous fancy of the brethren in some of these states is indeed appalling—but it is only a dream. Their fears multiply the numbers of tuberculous dentists, and if uniform laws should be enacted to-morrow it is doubtful if Phoenix and San Antonio and Pasadena would know the difference, at least through any abnormal growth of their consumptive population. And if it did give a chance to some poor fellow to find health, would that wrench the heart of any manly man who is practicing in any of these salubrious cities? Have we come to such a state of petrified selfishness that we are unwilling that our brother man, to say nothing of a brother practitioner, shall have a chance to win back his strength because his presence in our community might mean increased competition in our business? For one, I refuse to think so meanly of my professional brethren, even though this argument has found expression by isolated individuals.

A second question which needs to be asked and answered is this: Would the proposed legislation serve to better conditions? I have already indicated the answer; but the action taken last year by the National Association of Dental Faculties, the National Dental Association and the National Association of Examiners furnishes an emphatic affirmative. Why should these bodies, as they did, appoint committees to consider this matter jointly, with a view to inducing effective endeavor to secure uniform legislation, if, in their opinion, such legislation would not inure to the distinct benefit of the dental profession? I doubt if there is one intelligent member of our profession who distrusts the effect of the proposed legislation in enhancing the interests of the cause to which we have devoted our lives.

What, then, stands in the way of accomplishing this desirable end? Is it the theory of "state's rights"? To some extent. Is it the force of inertia, by virtue of which it is difficult to set in motion a stationary body? To some extent. There are many reasons why this movement, so warmly sanctioned by many and so ardently urged by some, makes slow progress. What is the one great obstacle? To act on the dictum of Emerson, "Let there be truth between us two forevermore," it must be said that the chief hindrance lies in our selfishness. When the members of the profession are united in support of this undertaking nothing can prevent its accomplishment. Laymen are not interested in keeping things as they are. They have little interest in the matter one way or another. They are not blocking the wheels. It is the fear in the hearts of members of our profession that somehow their individual incomes will be injuriously affected by the change, that halts the ongoing of a movement fraught with untold good to our profession. When the dentists of this country, as one man, ask for uniform laws, then those laws will be enacted. And when we have grown to sufficient stature in manhood to forget personal and selfish interests in remembering the larger good, then we shall ask, and, asking, receive.

92 State Street.

DISCUSSION.

DR. VIDA A. LATHAM, Chicago: A prominent member of the profession, sick from overwork, was advised to change climate. He removed to another state, passed the state board, paying $50 as the examination fee, and worked in that state for some time. His wife became ill and he was advised by eminent physicians again to change climate. At great inconvenience and expense he paid another $50, took the examination and failed. Is it right, when you have conformed to the state (or states) laws at the time your diploma or state license is received, with the understanding that the laws of that county and state are in force, that your license should not be recognized in every state? If a man has won a state board license, why must he pass in another state, provided he is a graduate of a properly-equipped and well-known college? We are ourselves to blame for this condition. Another great difficulty is that of regulation of colleges. If we arrange that all our schools shall agree with all other schools as to the requirements, with adequate equipment and proper educational facilities, we shall have less trouble about reciprocity and equality.

DR. E. A. BOGUE, New York: Perhaps Dr. Peck can tell us if he has carefully inquired of those competent to judge as to whether or not federal legislation on the subject would be efficient. If he has and we were to devote all our energies toward getting this federal legislation, then he has struck the nail on the head. If he has not, then perhaps he can tell us what steps to pursue.

DR. THOMAS L. GILMER, Chicago: It seems to me that there is but one way under existing conditions by which we can bring about reciprocity which is so desirable both in dentistry and in medicine, and that is to procure uniform laws. As to the federal government taking charge of this matter, it seems to me quite impracticable unless the Constitution of the United States is changed by amendment, which would be a long and difficult, if not impossible, method. If we continue to make proper efforts in the right direction we shall eventually succeed in getting uniformity of laws in all of the states which will give one the right, which is his right, to practice in any state if he is licensed to practice in any other state.

DR. FREDERICK B. MOOREHEAD, Chicago: We must never forget that the integrity, the safety and the longevity of the

nation depend on the rights of the individual states. If these rights should be disturbed in any sense the whole country would collapse. I believe that federal control is utterly impossible. The only feasible plan is for the states to act. This has come about in the practice of medicine, and it must come in the practice of dentistry in precisely the same manner. In the beginning of reciprocity in state license of various state boards of health one state suggested that it make a combination with another state, that with a third state, and so on; and these states have set up a standard which is compelling other states to come in under the same standard. The safety of reciprocity rests absolutely on that fact. If in our own profession two or three of the strong states can make a standard, other states will be compelled to come into line. It is a good thing that the matter does progress slowly, because if it went rapidly it would fail, and failure puts every movement back many years.

DR. A. H. PECK: There are thirty-two states at the present time which grant reciprocity.

DR. EDMUND NOYES, Chicago: There is great need of far more reciprocity in laws between states than we now have. We need it throughout the United States in regard to divorce laws, and I am under the impression that teachers are subjected to re-examinations in absurd ways. There are many such reforms that need to come, and will come. What has been said about medical reciprocity has the very greatest encouragement in it. There is no reason in the world why we can not accomplish the same thing, and much more rapidly than the medical men have accomplished it, because we have the precedent that they have established. We have only to travel the road which they have pioneered, and it is a matter of such reasonableness that there should be practical uniformity of standards and consequent reciprocity in privileges that it seems to me impossible that it should be very long delayed.

DR. T. E. CARMODY, Denver: A great many members of the dental and medical professions come to Colorado because they have lost their health in the east, and a few from Colorado go east and take examinations. Those who come to Colorado for their health are usually the ones who have been educated up to a high standard; they are able to pass the examination. The health of drones seldom fails. The people who fail in examinations are those who come there thinking to evade the high standards of the east.

DR. ADELBERT H. PECK: It is immaterial to me whether each individual state or the central government acts—it is results that we want. If it were possible for the federal government to control these matters, that would, in my opinion, be the ideal way. There are many matters with which states have to do individually, that are now being controlled by the federal government, and this is coming to be the case more and more each year. I do not, therefore, understand why it could not act in this matter as well as in the others. A federal commission has been advocated for the regulation of state water supplies, for controlling epidemics, for carrying on the fight against tuberculosis, etc. Why is it impossible for us to have a little federalism in connection with dentistry? However, there are thirty-two states at the present time in which the medical profession has reciprocity, and others will probably come into line in the near future. Reciprocity in dentistry is now being agitated with very favorable indications in six or seven of our states, and no doubt that number will soon accept the doctrine, and in fifteen, twenty or thirty years hence all of them may have adopted it, we hope. But it is a slow process, and we will, I think, find that it will be a longer time than many anticipate before all the states accept the doctrine. I wish it could be to-morrow, because I believe that we ought to have reciprocity in the licensing of dental practitioners in all the states.

Unusual Mortality Rate in Autopsies.—A writer in the *Virginia Medical Semi-Monthly*, July 10, says: "During the time since 1900 I have performed 500 autopsies. Of this number 161 *resulted in death* (italics ours) as a result of injuries to the head."

MEDICAL EDUCATION IN THE UNITED STATES; THE NEED OF A UNIFORM STANDARD.

ARTHUR DEAN BEVAN, M.D.
Chairman of the Council on Medical Education of the American Medical Association.
CHICAGO.

The methods of medical education in this country have been largely drawn from those of Great Britain and Germany. Our first medical schools, those of Pennsylvania, Columbia and Harvard, were modeled largely after those of Edinburgh and London. For a short period about 1850 the influence of the great French medical teachers was felt, but later, especially since 1870, German influence has predominated. I do not mean that in medicine America has merely adopted and imitated English and German methods; for as we all know the men who took an active part in the creation of our republic were noted as fertile in invention in all fields of thought and action and especially so in medicine, as shown by such American discoveries as ovariotomy and anesthesia. Naturally, however, in the establishment of the first medical schools in our new country the best existing types in the countries from which our people came, i. e., Great Britain and Germany, were adopted as models.

REASONS FOR PROPRIETARY MEDICAL SCHOOLS.

Unfortunately, however, after the war of the Revolution there sprang into existence a peculiar American type of medical school. With the enormous and rapid development of our country, which in a little more than a hundred years has grown in population from three to eighty millions and in extent from a narrow strip on the Atlantic seaboard to the enormous sweep of land extending from the Atlantic to the Pacific, there came an enormous demand for physicians from the thousands of cities and towns which sprang into existence.

This legitimate demand led to the establishment of a great number of medical schools all over the country. Unfortunately, this demand was so urgent that the medical school often preceded the high school, college and university and marched with the church in the vanguard of the wave of population, which spread over the land. Most of the medical schools developed independently of any university and were owned and controlled by small groups of medical men, who, in many instances, conducted the schools as business enterprises for what money and reputation they could make out of them, and for a time teaching medicine in this country was a profitable business. It must not be supposed, however, that these schools were necessarily all bad. Many were controlled by men of high ideals, by men who became great teachers and left an impress on the medicine of their day—such men as Gross and Flint, Van Buren, Davis, Gunn, and many others. Some of the better type of these schools, like Bellevue, Jefferson, Rush and others, did an invaluable service in furnishing thousands of men well trained in the medicine of their time who in war and in peace served their country well.

A WRONG PRINCIPLE AND THE RESULTS.

But the principle of conducting medical schools as commercial enterprises was, of course, wrong and indefensible, because it led to competition for students and resulted in the reduction of fees and the time of study.

in the accepting of men without preliminary education and in the graduation of unfit men. The result has been, that in the United States to-day we have more medical men per capita and more medical schools than any other country in the world. In fact, we have almost as many medical schools as all other countries combined —161 to 174 for the rest of the civilized world.

At the present time, of course, we have a considerable number of schools which furnish thorough training and a few schools which are equal to any in Great Britain or on the continent. The average medical school in this country, however, is unfortunately low. In the investigation made by personal inspections last year by the Council on Medical Education, graded on a civil service basis[1] and on a very liberal and lenient marking, only 82 of the 161 medical colleges could be listed as acceptable; 47 were classified as doubtful, while 32 were found to be unsatisfactory. It is fair to say that not more than 80 out of the 161 schools teaching medicine have any claim to recognition. I wish that every member of the American Medical Association could have made the inspection of the medical schools of this country with our committee last year and seen the farce of attempting to teach modern medicine, as it is being taught in many schools, without laboratories, without trained and salaried men, without dispensaries and without hospitals. Schools were found which were mere quiz classes, where students were given just enough text-book knowledge to attempt state board examinations, and where the teacher looked for his compensation in consultations sent him by his illy-qualified pupils.

NO LONGER AN EXCUSE FOR LOW STANDARDS.

But the wave of settlement and civilization has finally spread until there is no longer a frontier. Again, the supply of physicians far exceeds the demand. From the standpoint of demand, therefore, the excuse for low standards of medical education and of medical colleges operated for profit no longer exists. Medicine, too, has changed. The known facts of medicine thirty years ago might have been taught in a two years' course of didactic lectures by a few men. To-day the known facts in medicine, which must be mastered before a student becomes a qualified practitioner, require much more time, require a thorough preliminary preparation, and a thorough laboratory and hospital training.

MODERN DEMANDS IN MEDICAL EDUCATION.

To meet the demands of modern medicine, the medical graduate hereafter should be one whose preliminary training, besides a high school course, has included at least a year's work in college physics, chemistry and biology. His medical training should have been in a medical college fully equipped with all the extensive apparatus so necessary for the teaching of modern anatomy, physiology, pharmacology, bacteriology and pathology; in a college which has experts paid to devote their entire time in charge of these laboratories; in a college which has hospital and dispensary facilities in such abundance as to allow of a carefully graded course even in clinical instruction, and in a college which offers thorough laboratory courses in clinical diagnosis in connection with the study of hospital and dispensary patients. Finally, the medical student should receive the training and experience of at least a year's internship in a hospital. These requirements would not be unreasonable.

The time has certainly arrived, when in this country of great wealth, great intelligence and wide opportunities to acquire an education, the medical profession and the public should unite to demand a reasonably thorough training of its medical men. We should insist that medical standards be as high and medical training as thorough as in other civilized countries.

No physician should under any circumstances retain or accept a connection with a school not capable of teaching modern medicine. State boards should inspect the schools and refuse recognition of those not teaching or not capable of teaching modern medicine.

PROBLEMS IN MEDICAL EDUCATION: LACK OF TRAINED TEACHERS.

Next to the requirement of a higher standard of preliminary education, probably the most important problem confronting medical education in this country is the securing of trained teachers, especially for the laboratory courses. It is difficult to secure and keep bright men in the laboratory years, especially men who have graduated in medicine and who have had a taste of clinical work as hospital internes. The result has been that the laboratory positions, except in the best schools, have been filled largely either by men without sufficient training or by general practitioners who devote but a small part of their time to the work. Again, what is undesirable, in some of our schools these positions have been filled by men who have not had a complete medical training and do not have the best conception of practical medicine. This tendency impresses me as unfortunate and in my opinion a definite stand against it should be taken. It is evident that a teacher of anatomy, or physiology, or pharmacology or bacteriology, who has not had a complete medical training is seriously handicapped and is not apt to be the best man to teach these subjects in the medical school. Without the medical point of view obtained from a complete medical course, the teacher in these subjects is liable to be an inefficient or biased instructor.

Modern clinical medicine is fully as scientific as the work of the laboratory years. The teacher in the laboratory years of a medical school who is not in close touch with modern clinical medicine, is sometimes firm in his belief that he, alone, is teaching the science of medicine and that his colleagues in the clinical years are teaching a handicraft. That this feeling exists not only here but also in Germany, is shown by a statement made by Friedrich Mueller, the great German internist, in a recent lecture,[2] in which he says:

> As a professor of clinical medicine I hold the opinion that an observation made at the bedside is as well to be considered scientific as an observation made on an animal, nor do I think that because it is unable to speak that the rabbit is a more scientific animal than man.

NEED OF PRACTICAL MEDICAL TRAINING.

In a notable address by Sir Felix Semon,[3] on English and German Education, we find the following:

> No doubt the learning of science for science' sake is a most lovable thing and one which every scientific worker would instinctively encourage as much as he can, but the stern fact intervenes that life is short and art is long and there is much

1. THE JOURNAL A. M. A., May 18, 1907, p. 1702

2. Archives of Internal Medicine, Jan. 15, 1908.
3. British Medical Journal, Nov. 2, 1907.

to learn. The claims of individual sciences, which are only accessories toward the making of a doctor must of necessity be subordinated to higher purposes and the highest purpose in the education of the medical man is to make him fit for the exercise of his future duties. The work of the teacher is to make the pupil familiar with those results of the science he teaches, which will be practically useful in the doctor's future career.

I am fully convinced that as a medical man through inclination and circumstance is drawn to do work in a certain line his preparation should be private and individual, and that the whole medical community should not be compelled to spend a disproportionate amount of time and energy on subjects which will be of real use to only a very few, while subjects of the greatest importance have to suffer in proportion to the amount of time devoted to purely scientific purposes.

This statement from one who has worked in both pure physiology and in clinical medicine carries great weight and should be pondered by some of our men in the laboratory years, who may not care to see the practical application of their work.

COOPERATION OF LABORATORY AND CLINICAL TEACHERS.

I should make this further observation in connection with this subject, that not only should we require a medical training for all of our instructors in the medical departments, but we should insist upon a close association and cooperation between the departments of the laboratory and clinical years. I know that the clinical years would be greatly benefited by keeping in close touch with the laboratory work and I feel equally confident that the men in anatomy, physiology, pathology and pharmacology would be better instructors and much more apt to develop research work of value if they kept in touch with the problems and advances in clinical work. That such association is compatible with the highest development of their own scientific departments is clearly shown by the work of such men as Waldeyer, Virchow, Cunningham, Koch, Horsley, Welch and others.

I believe I see in such cooperation also a means of providing the best instructors for both laboratory and clinical departments. If the plan was generally adopted of filling the positions in the clinical departments by men who had devoted a certain amount of time to teaching in the laboratory years, it would induce the best brains that graduate in medicine to take up laboratory teaching. A few of these would remain permanently in these departments fascinated by the work, while such as were later appointed to clinical positions would have the best possible foundation for their clinical work.

THE BEST CLINICAL TEACHERS.

The man who teaches clinical medicine or surgery, therefore, should have a good laboratory training and a great fund of experience gained from the handling of a large amount of clinical material. If he is to teach his students to become both scientific and successful practitioners, this material must represent all classes of society. It goes without saying that the clinical teacher must devote much of his time to teaching and research and that his college work must have the first call on his time.

The best clinical teacher is necessarily a successful clinician; he must be both a teacher and a clinician. The suggestion, which has been repeatedly made that in the development of the modern medical school the teacher in the clinical departments should be a salaried man devoting his entire time to teaching and research is easily shown on analysis to be fallacious. The clinical teacher who devotes one-half his day to his teaching and clinical cases and the other half to a lucrative, private practice, will make a much better teacher than the clinical teacher who devotes his entire day to his clinical work and draws a salary on which he lives. Such great teachers as Billroth, Kocher, Fenger and Senn are evidence of this fact.

It is difficult to keep a twenty-five-thousand-dollar man in a twenty-five-hundred-dollar position. I know that it is easy to find theoretical arguments in support of the salaried clinical teacher devoting his entire time to teaching. I simply present the fact, however, that the greatest clinical teachers always have been and probably always will be the men whose skill has been recognized and sought by both rich and poor, by both the profession and the laity.

Even if a medical department had sufficient money to pay enormous salaries to their clinical teachers, the money would be much better used in paying larger salaries to the laboratory men, who are notoriously underpaid and in providing living salaries for the younger men in the clinical departments who are doing the routine teaching and devoting much time to research work.

DEVELOPMENT OF CLINICAL TEACHERS.

Few of the schools of this country have the well-established system which exists in Germany for the development of well-trained clinical teachers. Each clinical chief should choose his assistants from men, who, after their hospital interneship, had served for several years in either anatomy, pathology, physiology or pharmacology as instructors and in research work and demonstrated their capacity. These men should be promoted, as they become more and more competent, from the lowest position to that of first assistant, which place might be reached in from five to ten years, by which time a man as first assistant should have so mastered his subject that in the absence of the chief he could take charge of the service and conduct the clinic. By this time, too, in the event of the retirement or death of his chief, or the occurrence of a vacancy in another school, he could offer himself as thoroughly qualified for the place.

In order that we may better estimate the needs of medical education in America let us note the requirements of medical education in Great Britain and Germany.

REQUIREMENTS IN GREAT BRITAIN.

In Great Britain there are 36 medical schools, 21 in England, 6 in Ireland and 9 in Scotland. The control of medical education is in the hands of the General Medical Council, which has the power to create a register of qualified practitioners, and which determines the amount of preliminary education, the character of the medical curriculum and in a general way the examination for licensure, which last, however, is in the hands of a number of separate bodies.

The English boy who eventually studies medicine, beginning at 6 years of age, has about twelve years of preliminary education. He leaves the secondary school at 18 or 19 and after passing an examination on English mathematics, Latin and either Greek or a modern language, matriculates in medicine. He can legally begin as early as 16. It is interesting to note that the

very strong British educational committee with Victor Horsley at its head has not been able to increase this even to 17 years.

The medical course covers a minimum of five years, but as a matter of fact the average time spent by the medical student is more than six years. In 1906 the average time of those who were licensed was six years and eleven months. Of the five required years, the first year is devoted to physics, chemistry and biology, i. e. botany and zoology; the second to anatomy, physiology, organic chemistry, histology and pharmacy; the third to anatomy, physiology and pharmacology; the fourth to medicine, surgery, pathology, obstetrics, therapeutics and hospital work, and the fifth year to medicine, surgery, hygiene and the specialties. The student spends part of the fifth year in a hospital as clinical clerk and dresser. On the completion of his course, he presents himself for examination before one of several bodies in order to secure a license to practice. This examination is rigid and tests the ability of the student thoroughly; about 30 per cent. fail so that, as already stated, the average time devoted to study before securing the license to practice is between six and seven years.

The schools are fairly uniform in character, they are occasionally inspected by the medical council and are required to do acceptable work. There are no very poor or worthless schools corresponding to the poorer schools found in this country. On the other hand, there are no medical schools with a degree requirement for admission.

REQUIREMENTS IN GERMANY.

In Germany the boy who eventually studies medicine, begins at 6 in a public school and later enters a gymnasium from which, after twelve years of study, he graduates at 18 or 19 years of age. He is then entitled to matriculate at any of the German universities.

There are three types of secondary schools in Germany corresponding to the different groups of studies offered in the best high schools in this country. The gymnasium may be likened to the classical group, the *Realgymnasium* to the Latin-scientific group, and the *Ober-realschule* to the English and modern language group. I am inclined to believe that a higher value has been given to the work of the German gymnasium by some of our German friends and some of our own college professors than it is fairly entitled to in comparison with some of our best high schools. Some even state that the work of the gymnasium is equal to our four-year college course, while others say it corresponds to the first two years of our college course.

Muensterberg, for instance, would have us believe that the German boy leaving the gymnasium is about as well qualified to begin professional studies as an American boy who graduates from Harvard. Muensterberg probably believes that the German navy sustains about the same superior relation to the American Navy.

It may be true that in this country the high schools are not as uniform as are the gymnasia in Germany and that on the average the instructors in the gymnasia are better qualified than our high school teachers. Nevertheless, I feel confident, that the American boy, who graduates from one of our best high schools at 18 after twelve years of study is quite as capable of beginning the study of medicine as the German boy, who graduates from the average gymnasium at 18 after twelve years of study.

We should keep in mind, also, that our elementary and high schools are making marvelous advances just as are our medical schools and that we can confidently look forward to the time, when, throughout the entire country, and not excepting the south, twelve years of education in America will mean as thorough preparation as will twelve years of education in any other country.

A SIX-YEAR MEDICAL COURSE.

Graduation from the German gymnasium admits to the six-year medical course. Physics, chemistry and biology are taken in the first two and one-half or three years of the medical course along with anatomy, physiology, pharmacology and pathology. The fourth and fifth years are devoted to medicine, surgery and the specialties, and since 1904 a sixth year has been required which the student spends as an interne in a hospital.

Germany has twenty medical schools, all being medical departments of universities. They are conducted on such uniform lines that a student can pass freely from one university to another, the work of one being recognized by all. The result of this scheme of education, is to turn out a high average of medical men. The German scheme of medical education, however, is not entirely perfect. There is a serious lack of supervision because of which a student may do little or no work, but may loaf and drink away his time.

CONTROL OF MEDICAL EDUCATION IN THE UNITED STATES.

Unfortunately, in the United States with its 161 medical schools there is no national control of medical education. Medical legislation is in the hands of fifty state governments and each state makes its own medical laws and executes them as it sees fit, with the result that there are fifty different standards of control.

The reorganization of the American Medical Association, however, has developed a body of 80,000 medical men, which organization represents the best element of the medical profession and it is within the power of the profession thus organized to demand and secure proper medical legislation in each state and to see that it is properly enforced. Without question the securing of more reasonable standards of medical education is at present the most important function of the American Medical Association and of the state medical societies. In the interest of public health and for the prevention of disease, no movement is of greater importance than that which will secure for a country thoroughly qualified medical men. Therefore, every qualified physician in each state should take an active interest in bettering the quality of the future graduates in medicine.

NEED OF AN AMERICAN STANDARD.

Again, there has been no American standard generally accepted, although several organizations are working toward that end. Our medical schools represent the best and the worst in the world. Some demand a college degree, which means three or four more years of preliminary work than is required abroad, while others demand no preliminary education whatever. Neither of these extremes should be taken as the standard. While no student should begin the study

of medicine without a high school training and a thorough understanding of chemistry, physics and biology, on the other hand the requirements of a college degree should not be made mandatory. If we were to present to the medical faculties of the universities of Berlin, Vienna, Edinburgh or London, the suggestion that they should demand in addition to their high school education a four-year course in a college of arts they would probably ridicule the suggestion and not consider it seriously at all. A limited number of men will secure a college degree before entering the medical school and such men should be encouraged, but in the framing of a broad university scheme of medical education, the requirement of a college degree, of all medical students should not be seriously considered by us in America any more than it has been in Great Britain and Germany.

THE AMERICAN STANDARD.

To my mind the minimum American standard should eventually include the following requirements:

A. The completion of a course in a high school such as outlined by the committee of ten of the National Educational Association,[4] or, in other words, a high school having a four-year course and which requires for admission the work of eight years in the elementary grades. This standard has been adopted by the Carnegie Foundation for admission to colleges of liberal arts.

B. A thorough training in physics, chemistry, biology and one modern language, preferably German, which would mean the equivalent of at least one year's work in our leading colleges of liberal arts. Many of the schools will require two years of this work, which may probably be the better plan.

C. A four-year course in medicine, which should include:

(a) Two years of study, consisting largely of laboratory work, in anatomy (including histology and embryology), physiology, chemistry (including physiologic chemistry), pharmacology, bacteriology and pathology, and

(b) Two years of clinical work largely in dispensaries and hospitals, including thorough courses in the practice of medicine (including physical diagnosis, pediatrics and nervous and mental diseases), surgery (including surgical anatomy and operative surgery on the cadaver), obstetrics, gynecology, materia medica, therapeutics, laryngology, rhinology, ophthalmology, otology, dermatology, hygiene and medical jurisprudence. There should also be a course in clinical microscopy, including hematology.

D. A year as an interne in a hospital. This last practical year is one of the most important in the course and should be made compulsory.

Such a scheme of medical education is practical and efficient and it is possible for all medical schools which have any good reason for existence to come up within a reasonable time to this standard as their minimum requirement.

It certainly would add strength to the movement to secure a high and uniform standard if our best institutions would adopt some such standard as I have outlined, which is practically the standard of Germany. I believe that by so doing they would fulfil their duty to the public much better than by adopting a degree requirement which is so time-consuming that other institutions of the country and the world can not agree to it.

One of the important functions of our great universities is to educate thoroughly competent medical men, and each one should turn out a large number of such men, not a limited number. Each should hold the same place in its community that is held by the great German universities and should provide largely the medical men needed in the section of the country in which it is located. Our better universities should not be put on a basis that will seriously limit the number of competent medical men, thus leaving the duty of supplying the great bulk of physicians to the poorer, illy qualified schools.

A HIGH, PRACTICAL AND UNIFORM STANDARD DESIRED.

What we need is a practical and high uniform standard for all schools. Dr. N. P. Colwell, the secretary of the Council on Education, made a careful investigation of the medical courses in the twenty most important countries and found that no country required more than two years of higher preliminary education and that the earliest age of graduation was 24 to 25 years.[5] If a college degree was required for admission as at some of our university medical schools the age would be 27 to 28. Already, however, there is sweeping over the country a strong movement for a standard of medical education which is high and yet practical. More than fifty schools—about two-thirds of the acceptable schools of the country—have agreed to adopt by 1910 as a preliminary requirement a four-year high school education plus a training in physics, chemistry and biology and one modern language. The practical year as a hospital interne is largely taking care of itself. Already in our better schools the majority of the graduates secure hospital positions. The desirability of this practical year is recognized also by the medical graduates and hospital positions are eagerly sought.

The general adoption of the standard above outlined is sure to come within the next few years. This will mean a great reduction in the number of medical schools and a decided improvement in the 60 or 80 schools, which will remain.

In order to obtain this high standard the better elements in the profession must unite and work for this common purpose. In this country in order to teach modern medicine we need state aid in private endowment. We must appeal to the public to provide such aid and educate them in the possibilities for good in providing well trained physicians.

RECOGNITION OF THE GOOD AT HOME.

Chauvinism should have no place in medicine and yet it is well for each nation to have a proper pride in and cultivate a patriotism for its own medical profession and its own medical achievements. We have not done this in America as we should. We have been rather prone to belittle our own medical men and our own medical work and to exalt those of Germany, Austria, England and France. We have too often given important positions to foreigners, who have sometimes unfortunately shown no loyalty to our country or to our ideals and in some of these cases it has become evident that the position and opportunity would have developed a much better man out of our own home material.

Let us remember first, that we are Americans and let us not be ashamed to cultivate a patriotism for American medicine. In spite of its shortcomings, many of which I have just mentioned, American medicine, even to-day is from the standpoint of productiveness

4. THE JOURNAL A. M. A., July 6, 1907, p. 65.

5. Report of Council on Medical Education, THE JOURNAL A. M. A., May 16, 1908, p. 1641.

of both laboratory and clinic superior to that of any other country, except possibly Germany, and in some matters, as in the immediate care of individual cases in clinical medicine, the purely operative side of clinical surgery and in surgical technic, America leads the world. American medicine and American Medical Education have been advancing in the last twenty years by leaps and bounds and we can look forward to the future confident that in the coming great development of modern medicine our country will contribute fully its part.

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THERAPEUTIC IMMUNIZATION IN MIXED INFECTION.*

A. P. OHLMACHER, M.D.
DETROIT.

Among the many problems that confront the physician who would apply in practice Wright's method of therapeutic bacterial immunization is the one of mixed infection. What should be the course in case of a mixed infection? Here, as elsewhere in the practice of bacterial therapy, judgment as to the relative importance to attach to the various factors must decide the question; and it is to give the results of my quite extensive personal experience that the present communication[1] is offered. In a general way it may be said that a mixed infection offers a less promising outlook than that by a single bacterial species, and still some brilliantly successful results have been obtained by inoculations in very complicated and long-standing infections.

Given two, or even three bacterial species, well known as pathogenic agents, and their simultaneous appearance in the secretion of a certain lesion, it is entirely proper to inoculate a mixed vaccine containing proper doses of the offending bacteria. Or when the urgency is not too great inoculation with the predominating and most likely pathogenic agent is to be first performed, and in case of an unsatisfactory issue, a vaccine from the other bacterial species can be added in subsequent injections. Say, for instance, that *Staphylococcus aureus*, or a streptococcus, is found associated with *Bacillus coli* in the discharge from fistulas of abdominal origin, a mixed vaccine would be in order. Again, especially in old suppurative lesions, a putrefactive organism (of the proteus group generally) is found largely exceeding the underlying and presumably original pyogenic agent like staphylococcus or streptococcus. Here the pyogenic microbe might first be tried, but to it should be added a vaccine from the secondary organism in event of a failure to bring a good result. I have been surprised several times to find success seemingly hinging on the use, in conjunction with the vaccine of a well-known pathogenic species, of that prepared from the secondary invader belonging to the proteus-like or colon-like, or pseudodiphtheria bacillus group, for some of these secondary organisms were clearly of saprophytic origin and one would ordinarily not assign to them any greater importance than that of accidental invasion into an already prepared soil. For example, in an extensive draining thoracic empyema which had been abandoned from the standpoint of further operative interference, and where the discharge had recently become exceedingly foul, I recovered a streptococcus and a bacillus of the proteus group. Inoculations of the streptococcus failed to effect a marked therapeutic response, but when a vaccine of the proteus was added, clinical betterment promptly began and continued until the final complete cessation of suppuration and closure of the fistula.

In dealing with the mixed infections of a pyogenic nature, it is necessary to follow the events in the more chronic suppurations by bacteriologic analyses from time to time, and to modify the inoculations to correspond with the changes in the bacterial flora of the pus in case the therapeutic response is not satisfactory.

Certain combinations of bacterial species seem particularly obstinate in their reaction to therapeutic inoculations. It has appeared to me that chronic infection in which *Bacillus pyocyaneus* becomes associated with other pyogenic species is especially stubborn, for I have utterly failed to obtain a sustained improvement in one case of infected breast wound, and another of cystitis and possibly pyelitis in each of which the pyocyaneus was associated with the streptococcus, notwithstanding most patient trial by inoculations variously spaced and dosed, and employed both with and without the guidance of the opsonic index. Such a state of affairs is in keeping with the well-known proclivity of wounds with pyocyaneus infection to be obstinate in healing. But on the other hand, I have just passed through an experience with a recently infected phlebotomy wound with extensive cellulitis and suppuration of the arm, due primarily to streptococcus in which the widely incised suppurating tissues took on a pyocyaneus infection after a week, followed by a metastatic arthritis of the ankle due to the streptococcus alone. Here a speedy, favorable reaction followed mixed inoculations of the autogenous streptococcus and pyocyaneus, with diminution and disappearance of the blue pus in the course of two weeks and satisfactory healing of the infected incisions, including the infected joint.

In dealing with tuberculous diseases in which a mixed infection is demonstrable by the culture test it is proper to combine the inoculations of tuberculin with vaccines of one or more of the complicating bacterial species. That this procedure is conducive to good results in treating the suppurations following tuberculous urinary infection, adenitis, synovitis, or osteitis, I can add my testimony to that of other workers. It also appears to be good practice occasionally to include an inoculation of a staphylococcus vaccine with tuberculin in treating such diseases as pulmonary, glandular, joint or bone tuberculosis, even though a mixed infection is not demonstrable. In how far the use of pneumococcus, streptococcus, or staphylococcus vaccines with tuberculin for handling the corresponding forms of mixed infection in phthisis is valuable, is a point on which my personal experience does not yet allow me to pronounce definitely.

Syphilis and a concurrent or a secondary infection with pyogenic bacteria is another condition in which therapeutic bacterial immunization finds useful appli-

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* Read in the Section on Pathology and Physiology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. This condensed paper is a supplement to several previous reports which I have made dealing with the theory of opsonins and the practice of therapeutic immunization, as: A Series of Medical and Surgical Affections Treated by Artificial Autoinoculation According to Wright's Theory of Opsonins, THE JOURNAL A. M. A., Feb. 16, 1907; Practical Bacterial Therapy and the Theory of Opsonins, Ohio State Med. Jour., May, 1907; The Enlarging Field of Opsonic or Bacterial Therapy, Ohio State Med. Jour., September, 1907; and the article, Opsonic Therapy, in the forthcoming supplemental volume of the Reference Handbook of the Medical Sciences.

cation. Some of the earlier English workers in opsonic therapy found that the pus microbe infections of late secondary or tertiary syphilitic ulcers of the skin were more easily handled when inoculations of the causative bacteria were added to the specific medication. The results which I have witnessed in a rupeoid complication of a very extensive cutaneous syphilitic ulceration when inoculations of the patient's *Staphylococcus aureus* were used to reinforce the medicinal agents were such as to emphasize the value of the accessory biologic therapy. In a case in which an acute yellow pus microbe infection of a finger tip appeared as part of an unrecognized syphilitic infection of a wound received during a surgical operation, there was, aside from the ulcerating and suppurating initial lesion, a large neoplastic cellulitis of the corresponding arm, together with the constitutional symptoms of a severe septic state. I was able to control the septic condition and to effect a rapid reduction in the indurated mass by properly spaced inoculations of the autogenous staphylococcus. But healing of the ulcer of the infected finger did not occur until the advent of secondary syphilitic symptoms disclosed the nature of the underlying morbid conditions, and the proper specific medication had been instituted.

Clinical Notes

THE APPLICATION OF THE BIER CUP IN THE TREATMENT OF RECENT EMPYEMAS.

CHAUNCEY E. TENNANT, M.D.
DENVER.

The many methods which have been proposed for the surgical treatment of empyema and the physical wrecks we find after this lesion, bear witness to the need for more effective treatment of pyothorax. The chest being a cavity under negative pressure, the normal equilibrium is upset the moment an incision is made for the relief of pus. This condition continues so long as drainage is maintained. A space remains and the lung is slow to expand. This consequently embarrasses Nature's effort at repair, for so long as pneumothorax exists, just so long may we expect a certain lack of lung expansion. The introduction and the presence of the drainage tube into the space also prevents free pulmonic expansion.

To overcome this embarrassment various suction and vacuum devices have been proposed and used, among these being the Van Hook vacuum bottle, which is attached to the patient by a long rubber tube. Bryant has recently proposed and used the Politzer bag deflated and attached to the end of the drainage tube, with the margins of the wound sealed with rubber dam.

Some twelve months ago I proposed and used a ball-valve air check attached to the end of the drainage tube, this device permitting free outward flow of pus, with but little ingress of air. But to use this method successfully the contents of the pus cavity must be free from fibrin and other solid matter, and, as in all these methods, there must be no communication with a bronchus.

Murphy[1] reports the use of a 2 per cent. solution of formaldehyd (40 per cent.) in glycerin in cases of post-pneumonic empyema "without pulmonary gangrene or abscess, and which have no communication with a bronchus." A simple aspiration is first performed, followed immediately by the injection of one or two ounces of the formalin and glycerin solution. He especially emphasizes the necessity of having the solution stand for at least twenty-four hours before being used, and states that it may be repeated several times if necessary. This method seems nearer being the ideal treatment, since it does not produce a pneumothorax nor introduce drainage tubes into the chest cavity.

There are cases, however, which will not respond to this method, as has recently occurred in my own practice. Having had one of these cases in which the latter method failed me, I resected a rib and introduced a double rubber drainage tube, which was left in the cavity for five days. To the ends of this tube I inserted twice daily a strong glass syringe and aspirated the pus and fibrinous débris which had not escaped into the dressings during the interval. After this I covered the opening and the entire incision with a large Bier cup which fitted snugly over the incision. Then producing reasonably strong suction and leaving the cup in position for a period of thirty minutes, the pus and débris would quickly be drawn into the cup. At first the cup required frequent emptying, but after three days there was very little discharge. The pyogenic space soon became obliterated and the lung promptly expanded.

After all discharge had ceased and the incision almost closed, there developed some three inches below the site of the first pyogenic space a tender area associated with a rise in temperature. As this site was some distance from the first single rib resection, it seemed as though it might be necessary either to enlarge the first incision or to make another immediately over the site of the new pocket. A long uterine probe, however, introduced into the old opening and carefully passed down between the two pleuræ, reached and opened this pocket, and the application of the cup soon drained it. Convalescence has, therefore, been secured in four weeks in a case which usually requires as many months.

612 Empire Building.

1. Practical Medicine Series, 1908, vol. ii, p. 260.

METHOD OF REMOVING PLUNGER FROM A LUER GLASS HYPODERMIC SYRINGE.

ARTHUR S. HILL, M.D.
LOS ANGELES.

Much annoyance is caused when one attempts to use a glass hypodermic syringe and finds that one failed to wash out the syringe after the last using, that the medicament has recrystallized around the plunger, and that no amount of force short of breaking will loosen it.

To overcome this, remove the metal finger rests and carefully drop the syringe into a test-tube two-thirds full of a 20 per cent. solution of glycerin and water. Boil for a minute or two over a spirit lamp; then remove, and holding in a towel while still hot, give a firm twist and the trick is done.

Prehistoric Retrospective Diagnoses.—Probably the most remarkable example of retrospective diagnosis is that afforded by the localized red discoloration of the skull which Smith and Jones have found on the skull of a number of Egyptian mummies more than 5,000 years old. Chemical and other tests have shown that it is the postmortem evidence of a wound inflicted during life. It is thus the retrospective medicolegal testimony to an accidental or criminal traumatism more than fifty centuries ago. The splints found on the fractured limbs of the mummies were mentioned in these columns April 25.

Therapeutics

TROPICAL DYSENTERY.

Dr. R. J. Blackham, in the *Lancet*, Dec. 1, 1906, discusses the nature and treatment of this disease. He defines dysentery as: "An inflammation of the large bowel, associated with pain, tenesmus, some slight pyrexia, and a large number of stools, consisting of mucus or mucopus, with micro-organisms but with or without blood. Blackham thinks that it is important to remember that dysentery may be present without any blood in the stools. Predisposing causes to dysentery seem to be age, occupation, condition and environment. Young children and old people seem to be especially liable to contract dysentery. This is probably because they are less sturdy and less able to throw off the infection. It has been asserted that farmers are more likely to contract the disease than those who work indoors, while workers over furnaces, or in high temperatures, such as stokers and cooks, are likely to contract it. As to the "condition" being a cause, certain it is that anything that diminishes the vitality of the patient, and especially unhygienic surroundings tending to debilitate the patient, predispose to the disease. Overfed or underfed individuals are predisposed, in certain localities, to dysentery, and, of course, diseased or putrid or unripe articles of food may form the culture ground for dysenteric bacteria. A sudden chilling of the body may be an exciting cause.

The two forms of dysentery are amebic, generally a slow chronic condition, although there may be acute attacks, and bacillary dysentery, or the dysentery caused by a specific bacillus. This latter occurs generally as an epidemic, and the specific bacillus that is its cause has been described by various bacteriologists.

The prevention of dysentery is the improvement of the food, water, sewerage and the prevention of such diseases as malaria and typhoid. Anything that prevents these diseases also prevents the development and propagation of dysentery. Any person becoming debilitated from any disease, or any individual weak from age or other cause, should move from regions in which dysentery is likely to occur. Improvement of the hygienic surroundings of many places in tropical countries has reduced the frequency and severity of dysentery. If a region is visited in which dysentery is known to exist or is epidemic, only boiled or sterilized water should be drunk. Such clothing should be worn as to prevent chilling, especially of the abdomen; excesses of food and drink should be avoided, and alcohol taken not at all. Any simple diarrhea should be treated immediately, and strong cathartics should be avoided. Also, every case of diarrhea in tropical regions should be treated as a possible beginning dysentery, and the stools carefully disinfected lest they carry the bacteria that could cause dysentery in others.

Blackham divides the treatment of this disease into that of the acute and chronic forms. The indications in the treatment of the acute form are, to relieve the pain, to avoid irritating the inflamed intestinal mucous membrane, to promote intestinal antisepsis, and to maintain the patient's strength.

To meet the first indication nothing can compare with opium or morphin. The best method is probably to administer the morphin hypodermatically in dose and frequency to stop the pain and quiet the tenesmus. Some writers, however, advise the administration of opium as an enema, and Yeo recommends the administration of 1 c.c. (15 minims) of the tincture of opium (laudanum) in 30 c.c. (1 ounce) of cold liquid starch solution.

To meet the second indication, all food should be avoided that leaves a residue which could irritate the inflamed bowels, hence milk is generally not a proper diet for dysenteric patients, although recommended by many writers. Whey, broths, egg albumin, rice water and barley water make useful diets. If milk is used it should be boiled and diluted with an equal part of barley water and rendered alkaline by the addition of 0.30 gram (5 grains) of sodium bicarbonate and 30 c.c. (1 ounce) of lime water to each pint. If undigested curds of milk appear in the stools the milk should be peptonized or other food substituted.

The third indication is to attempt to produce intestinal antisepsis. This is best done, says Blackham, by salient aperients which sweep all foul accumulations and organisms from the intestinal tract; by the administration of certain drugs said to be specific; and by washing out the lower bowel with astringent and antiseptic fluids. In the tropics, he states, castor oil is the best preliminary treatment, and the dysentery may be checked by such immediate purgative treatment if combined with rest and a non-irritating careful diet for a few days. The best subsequent saline laxative is:

R.	gm. or c.c.		
Magnesii sulphatis	40		ʒx
Tincturæ zingiberis	10	or	ɱ.clxxxiss
Acidi sulphurici diluti	3		ɱ. xlv
Aquæ chloroformi ad	150		ad ℥v

M. et Sig.: A tablespoonful, in water, every hour as directed.

Or:

R.	gm. or c.c.		
Sodii sulphatis	40	or	ʒx
Aquæ fœniculi	150		℥v

M. et Sig.: A tablespoonful, in water, every hour, as directed.

"A tablespoonful of either one of these preparations should be given every hour until the movements of the bowels become fecal, and then every three or four hours for one or two days. If the stools become watery and do not become fecal, the saline treatment should be stopped and ipecac treatment resorted to."

The so-called specific treatment of bacillary dysentery or tropical dysentery is that with ipecac. The method of using ipecac in India is, after withholding all nutriment for three hours, to give opium in some form, perhaps best hypodermatically, as an injection of morphin, and half an hour after to give 2 grams (30 grains) of powdered ipecac.

R.	gm.		
Pulveris ipecacuanhæ	10	or	ʒiiss

Fac konseals 10.

Sig.: Take two wafers, with a small amount of water, at time directed.

The patient should then lie perfectly quiet and be cautioned not to swallow his saliva, and not allowed to drink any water, and not allowed even to talk. The hypodermic dose of morphin previously given will generally prevent the patient from vomiting the ipecac, and if it is not vomited in about two hours it will have passed into the intestine and the nausea will have ceased. Blackham neglects to state the frequency with which this ipecac should be repeated, but, as generally advised, it should be given in diminishing doses on succeeding days for at least three or four days.

The lavage treatment of dysentery is really only applicable when the disease is subacute or chronic, although cleansing of the lower bowel with plain warm water or warm boric acid solution (a tablespoonful of the boric acid to a pint of water) is sometimes advisable and good treatment, even in the acute form. The disadvantage is the pain which a rectal tube may cause, but a well-oiled small tube or large catheter may be passed, often, almost painlessly, and the soothing, cleansing solution used with gentle pressure, the reservoir not being held too high, will sometimes relieve the tenesmus and prevent movements of the bowels for hours. Blackham also omits speaking of small injections of ice water into the rectum. These also are sometimes valuable in relieving tenesmus and preventing the frequent small movements.

Blackham speaks of the advisability, in malarial regions, of administering quinin in conjunction with the other treatment for dysentery, and believes that in malarial districts it is advisable to administer considerable quinin before the ipecac treatment is begun. When dysentery patients have been deprived of fresh fruit and vegetables for considerable periods, and perhaps have become scorbutic, lime juice or lemons should be administered.

The most important thing in the treatment of acute dysentery is the maintenance of the patient's strength, and hence there must be the greatest care in the selection of the most nutritious food that furnishes the least bulk to reach the intestine. Blackham does not speak of the advisability of using the expressed juice of beef or strong beef extracts, but many times they are of great advantage and almost a necessity in combating the prostration from this disease.

Warm applications to the bodies of patients who are not feverish and who tend to be cold is an essential factor in preventing collapse. Caffein in the form of black coffee, or as a drug, is spoken of, as:

R.	gm.		
Caffeinæ citratæ	2	or	3ss

Fac capsulas 20.

Sig.: One capsule every six hours.

Strychnin is not mentioned by Blackham, and should perhaps be avoided, if possible, as tending to increase peristalsis, but in conditions of collapse must, of course, be administered, as should, perhaps, atropin.

He speaks of spartein being used with success. Spartein is, however, rather a doubtful circulatory stimulant.

If alcohol is needed it is best used in the form of brandy or champagne. When the temperature is low and the patient feels cold, small doses of brandy, not sufficient to cause cerebral stimulation nor too much vasodilatation, may dilate the surface blood vessels sufficiently to cause a feeling of warmth to the patient and the relief of internal congestions. While not indicated in collapse, it may prevent collapse from occurring by the action just stated. It also has a food value, although alcohol is by no means always indicated in dysentery.

For the treatment of chronic dysentery Blackham quotes Manson's treatment as advisable, viz.: "The administration of 30, 25, 20, 15, 10 and 5 grain doses of powdered ipecac on successive evenings, with rest in bed and a milk diet. He then gives a short course of small doses of castor oil, with or without opium, three times daily, regulating the dose according to the catharsis produced." If this treatment is not successful, he gives an intestinal antiseptic, such as salol (phenylis salicylas) or betanaphthol. If this treatment fails, the resource is then local applications to the mucous membrane of the lower bowel, and nitrate of silver injections are considered the best, although solutions of quinin are considered by Osler the best in amebic dysentery. The method of procedure is as follows: A cathartic dose of castor oil having thoroughly operated, the large bowel is washed out with a boric acid solution (a tablespoonful to a pint), and then about 1,500 c.c. (3 pints) of a 1 to 1,000 to 2 to 1,000 solution of nitrate of silver is passed into the colon. The only pressure used should be that of gravity. Blackham advises directing the patient to retain this injection as long as possible. As the action of nitrate of silver is speedy, and prolonged action and absorption are undesirable, it is much better that this liquid be allowed to flow out in a few minutes after the injection, in fact, it has been advised if the nitrate of silver solution does not quickly return that a sodium chlorid solution be injected to precipitate the nitrate of silver as an insoluble chlorid. This is rarely necessary, however, as peristalsis is caused by the nitrate of silver irritation and the liquid is generally quickly evacuated. This injection of nitrate of silver should be repeated once in four days, if it causes improvement.

It should be remembered that dysentery is a preventable, bacterial disease, and that the organisms may live on clothing for at least three weeks and maintain their virulence in damp soil for months. These germs, however, are readily destroyed by heat or by weak solutions of bichlorid of mercury or weak solutions of phenol. Hence it is inexcusable not to prevent the infection of others by proper disinfection of all the excretions, the bed clothing, and the utensils used about the patient. The room of a dysenteric patient should be thoroughly screened from flies. Blackham also well points out the necessity, when dysentery is epidemic, or in regions where dysentery is frequent, or in patients who have possibly acquired dysenteric contamination from travel, that the stools, even in apparently simple diarrheal cases, should be bacteriologically examined, and from the knowledge thus obtained the individual patient will not only be properly treated, but others may be saved from infection.

FOR REMOVAL OF SUPERFLUOUS HAIR.

The *Druggists Circular*, February, 1908, suggests the following as an efficient depilatory:

R.	gm.		
Strontii sulphidi	8		3ii
Zinci oxidi		or	
Amyli	āā 12		āā, 3iii

M. et Sig.: To be used according to directions.

[These powders should be thoroughly mixed and kept dry. When needed for use a sufficient quantity should be made into a paste with warm water and applied to the surface to be deprived of its hair. It should remain from one to several minutes, according to the nature of the hair and skin, but should not remain longer than five minutes. The preparation should be removed immediately when any burning action is felt by the patient. "After the removal of the paste the skin should be gently but firmly scraped with a blunt-edged knife (as a paper knife) until the hair is removed.] The surface thus treated should then immediately be washed with warm water and dressed with some simple soothing emollient," as:

R.	gm.		
Unguenti zinci oxidi		or	
Unguenti aquæ rosæ.....	āā 10		3iiss

Sig.: Use externally.

MEDICAL SCHOOLS OF THE UNITED STATES

Below is given a brief description of the medical colleges in the United States that are legally chartered to confer the degree of doctor of medicine, and whose diplomas are recognized by at least one state licensing board. The list includes the sectarian as well as the regular colleges, as their graduates are physicians in the eyes of the law. The information given is obtained from reports and from other reliable sources. The year when the first class was graduated is given. Unless otherwise stated, classes were graduated in all subsequent years. Colleges which belong to the Association of American Medical Colleges or the Southern Medical College Association or other organization of colleges have requirements for admission of students according to the rules of these associations, unless their requirements are higher, in which case a statement is made to that effect. Colleges belonging to the associations named and extracts from their rules are given at the close of the list of colleges. Population figures are taken from the United States Bureau of Education estimates for 1906.

ALABAMA.

Alabama, population 2,017,87, has two medical colleges, the Medical Department of the University of Alabama and the Birmingham Medical College, located, respectively, in Mobile and Birmingham. The population of Mobile is 42,903 and of Birmingham 45,869.

Birmingham.

BIRMINGHAM MEDICAL COLLEGE. Avenue F and Twentieth Street.—Chartered in 1894. The first class graduated in 1895. There are 21 professors and 14 assistants, total 35. The course of instruction embraces four separate sessions of seven months each. The fees are $75 for each of the first three years and $100 for the fourth. The Dean is Dr. B. L. Wyman. Registration, 1907-8, 134; graduates, 16. The fifteenth session begins Oct. 5, 1908, and ends May 5, 1909.

Mobile.

MEDICAL DEPARTMENT OF THE UNIVERSITY OF ALABAMA. St. Anthony and Lawrence Sts.—Organized in 1859 as the Medical College of Alabama. Classes were graduated in 1861 and in all subsequent years except 1862 to 1868, inclusive. It was reorganized as the Medical Department of the University of Alabama in 1897. All property was transferred to the University of Alabama and the present title assumed in 1907. The faculty consists of 8 professors and 13 lecturers and assistants, a total of 21. The course of study covers four years of seven months each. The total fees for each of the first three years is $100; for the fourth year, $125. The Dean is Dr. Rhett Goode. The total registration for 1907-8 was 169; graduates, 25. The forty-third session begins Oct. 1, 1908, and ends May 1, 1909.

ARKANSAS.

Arkansas, population 1,421,574, has two medical colleges, the Medical Department of the University of Arkansas and the College of Physicians and Surgeons, both located in Little Rock, a city of 39,959 people.

Little Rock.

UNIVERSITY OF ARKANSAS MEDICAL DEPARTMENT. Second and Sherman Streets.—Organized in 1879 as the Arkansas Industrial University. The first class graduated in 1880. It assumed the present title in 1899. The faculty consists of 18 professors and 10 lecturers and assistants, total 28. The course of study covers four years of seven months each. The fees are: Matriculation, $5, paid but once; tuition, per year, $60; graduation fee, $25. The Dean is Dr. James H. Lenow. Total registration, 1907-8, was 177; graduates, 19. The thirtieth session begins Oct. 1, 1908, and ends May 1, 1909.

COLLEGE OF PHYSICIANS AND SURGEONS. Lincoln Avenue, north of the Union Station.—It was organized in 1906. The first class graduated in 1907. The faculty consists of 30 professors and 8 lecturers and assistants, a total of 38. The course of study covers four years of seven months each. The Dean is Dr. J. P. Runyan. The total registration for 1907-8 was 87; graduates, 15. The third session begins Oct. 1, 1908, and ends April 30, 1909.

CALIFORNIA.

California, population 1,648,049, has eight medical colleges. Four are located in San Francisco, a city having, before the earthquake, 355,919 inhabitants. They are Cooper Medical College, Medical Department of the University of California, Hahnemann Medical College of the Pacific and the College of Physicians and Surgeons. The College of Medicine of the University of Southern California, the College of Physicians and Surgeons and the California Eclectic Medical College are situated in Los Angeles, population 116,420. The Oakland College of Medicine and Surgery is in Oakland, population 73,812.

Los Angeles.

UNIVERSITY OF SOUTHERN CALIFORNIA, COLLEGE OF MEDICINE. Buena Vista Street, between Ord and Alpine streets.—Organized in 1885. The first class graduated in 1888. It has a faculty of 33 professors and 39 lecturers and assistants, a total of 72. The course covers four years of eight months each. The fees for each year are $115. The Dean is Dr. W. Jarvis Barlow. The total registration for 1907-8 was 89; graduates, 26. The twenty-fourth session begins Oct. 1, 1908, and ends June 11, 1909.

COLLEGE OF PHYSICIANS AND SURGEONS. 516 E. Washington Street.—It was organized in 1903. The first class graduated in 1905. The course covers four years of nine months each. The faculty consists of 32 professors and 7 lecturers and instructors, a total of 39. The Dean is Dr. Charles W. Bryson, Delta Building, Los Angeles. The registration for 1907-8 was 37, graduates 10. The sixth session begins Sept. 26, 1908, and ends June 26, 1909.

CALIFORNIA ECLECTIC MEDICAL COLLEGE. 846 Lyon Street.—Organized in 1879 at Oakland as the California Medical College. Removed to San Francisco in 1887. Suspended in 1906. Reorganized at Los Angeles with the present title in 1907. Classes were graduated in 1880, and in all subsequent years except 1907. It has a faculty of 27 professors. The Dean is Dr. J. A. Munk. The registration for 1907-8 was 8, one graduate. The twenty-ninth session begins Sept. 14, 1908, and ends May 24, 1909.

Oakland.

OAKLAND COLLEGE OF MEDICINE AND SURGERY. Thirty-first and Grove streets.—Organized in 1900, opened in 1902. The first class graduated in 1906. The faculty numbers 30. The course covers four years of nine months each, and the classes are limited to ten students each. The tuition fee is $150 yearly. The Registrar is Dr. Edward N. Ewer. The total registration for 1907-8 was 10; one graduate. The seventh session begins Aug. 19, 1908, and ends about May 21, 1909.

San Francisco.

COOPER MEDICAL COLLEGE. Sacramento and Webster streets.—Organized in 1858 as the Medical Department of the University of the Pacific. Discontinued in 1864. Revived in 1870. It became the Medical College of the Pacific. Medical Department of the University College of San Francisco in 1873. The present title was assumed in 1882. Classes were graduated in 1860, and in all subsequent years, except 1865 to 1869, inclusive. Steps have been taken looking toward a union with Leland Stanford Junior University. The faculty consists of 18 professors and 41 lecturers, instructors, etc., 59 in all. The course covers four years of eight and and a half months each. Fees: Matriculation, $5; course fee for each year, $150; laboratory fee for each year $10; breakage deposit each year, $10; graduation fee, $25; no other charges. The Secretary is Dr. William Fitch Cheney. Total registration for 1907-8 was 97; graduates, 24. The fortieth session begins Aug. 15, 1908, and ends May 6, 1909.

UNIVERSITY OF CALIFORNIA, MEDICAL DEPARTMENT. Second and Parnassus avenues.—Organized in 1863 as the Toland Medical College. The first class graduated in 1865. In 1872 it became the Medical Department of the University of California. The first two years are given at Berkeley. The last two are clinical years at San Francisco. The faculty is composed of 17 professors and 40 associates and assistants, a total of 57. The course covers four years of nine months each. Three full years' college work is required of all applicants for admission. The fees are: Matriculation, $5; tuition, $150 each year; laboratory fees extra. The Dean is Dr. Arnold A. D'Ancona. Total registration for 1907-8 was 36; graduates, 16. The thirty-sixth session begins Aug. 17, 1908, and ends May 12, 1909.

HAHNEMANN MEDICAL COLLEGE OF THE PACIFIC. Homeopathic. Sacramento and Maple streets.—Organized in 1881 as the Hahnemann Medical College. The first class graduated in 1884. In 1888 it became the Hahnemann Hospital College of San Francisco. It assumed the present name in 1902. It has a faculty of 19 professors and 13 lecturers, instructors, etc., a total of 32. The course covers four weeks of seven months each. Total fees for the first year are $155, and $100 for each of the other three. The Dean is Dr. James W. Ward, 1380 Sutter Street. The total registration for 1907-8 was 33; graduates, 9. The 27th session begins Sept. 9, 1908, and ends May 27, 1909.

COLLEGE OF PHYSICIANS AND SURGEONS. 344 Fourteenth Street.—Organized in 1896. The first class graduated in 1897. The faculty numbers 45. The course covers four years of thirty weeks each. The Dean is Dr. D. A. Hodghead. Registration for 1907-8 was 70; graduates, 16. The thirteenth session begins Sept. 14, 1908, and ends May 12, 1909.

COLORADO.

Colorado, with a population of 615,570, has three medical colleges. Two of these, Denver and Gross College of Medicine and the Denver College of Physicians and Surgeons, are in Denver, which has a population of 151,920, the other, the Colorado School of Medicine, is at Boulder, population 6,150.

Boulder.

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE.—Organized in 1883. Classes were graduated in 1885 and in all subsequent years, except 1898 and 1899. The faculty embraces 23 professors and 16 lecturers and assistants, a total of 39. The work embraces a graded course of four years of nine months each. The tuition is $50 per year; there are no other fees. The Dean is Dr. William P. Harlow. The total registration for 1907-8 was 62; graduates, 11. The twenty-seventh session begins Sept. 14, 1908, and ends June 4, 1909.

Denver.

THE DENVER AND GROSS COLLEGE OF MEDICINE, 1025 Fourteenth Street.—It is the Medical Department of the University of Denver. Organized in 1902 by the union of the Gross Medical College (organized in 1887) with the Denver College of Medicine (organized in 1880). Classes were graduated in 1903 and in all subsequent years. The faculty is made up of 33 professors, 38 assistants and instructors, a total of 71. The course covers four years of eight months. Fees for the first year are $115. For the second year, $116. Third year, $101. Fourth year, $126. The dean is Dr. Walter A. Jayne, 416 McPhee Building. The total registration for 1907-8 was 79; graduates, 22. The twenty-seventh session begins Sept. 8, 1908, and ends May 13, 1909.

DENVER COLLEGE OF PHYSICIANS AND SURGEONS (Panpathic), 1317 Fourteenth Street.—Organized in 1894 as the Denver Homeopathic College. The name was changed in 1907 to the Westminster University College of Medicine and again in 1908 to the present title. Since 1907 it has offered to teach all systems of medicine. The Dean is Dr. J. B. Kinley. The total registration for 1907-8 was 46; graduates 6. Next session begins Sept. 7, 1908, and ends May 13, 1909.

CONNECTICUT.

Connecticut, with a population of 1,005,716, has only one medical college, located in New Haven, population 121,227.

New Haven.

YALE MEDICAL SCHOOL, York and Chapel Streets.—This is the Department of Medicine of Yale University. In 1810 a charter was granted for the establishment of this school, and in 1813 it was organized as the Medical Institution of Yale College. In 1879 the name was changed to the one now used. The first class graduated in 1814. The faculty consists of 12 professors and 44 lecturers and assistants, a total of 56. The course covers four years of nine months each. The fees are $150 each year; in the first year there are additional fees amounting to $18, and in the second $8, and there is a graduation fee of $10. The Dean is Dr. Herbert E. Smith, New Haven. The total registration for 1907-8 was 136; graduates, 29. The ninety-sixth session begins Sept. 24, 1908, and ends June 25, 1909.

DISTRICT OF COLUMBIA.

Washington, population 307,716, has three medical colleges: George Washington University Department of Medicine, Georgetown University School of Medicine and Howard University Medical Department.

Washington.

GEORGE WASHINGTON UNIVERSITY, DEPARTMENT OF MEDICINE, 1325 H Street, N. W.—Organized in 1825 as the National Medical College, Medical Department of Columbian College. Classes were graduated in 1826 and in all subsequent years, except 1834 to 1838 and 1861 to 1863, inclusive. The original title was changed to Medical Department of Columbian University in 1873. In 1904, by an act of Congress, it received its present title. The faculty is composed of 43 professors and 33 instructors, demonstrators and assistants, a total of 76. Beginning with the session of 1909-10 matriculants must present credentials of two years' work in a college of liberal arts or its equivalent. The course covers four years of eight months each. The total fees for the first year are $157; for the second year, $152; for the third year, $112, and for the fourth year, $162. The Dean is Dr. W. F. R. Phillips, 1607 Sixteenth Street, N. W. The total registration for 1907-8 was 198; graduates, 45. The eighty-seventh session begins Sept. 30, 1908, and ends June 9, 1909.

GEORGETOWN UNIVERSITY, SCHOOL OF MEDICINE, 920 H Street, N. W.—Organized in 1851. The first class graduated in 1852. The faculty contains 20 professors, 54 instructors and assistants; total, 74. The course of study covers four terms of eight and one-half months each. The fees are $150 each year. The Dean is Dr. George M. Kober, 1600 T Street. The registration for 1907-8 was 82; graduates, 27. The fifty-eighth session begins Sept. 27, 1908, and ends June 11, 1909.

HOWARD UNIVERSITY, MEDICAL DEPARTMENT, Fifth and W Streets, N. W.—Chartered in 1867. Organized in 1869. The first class graduated in 1871. Colored students compose a majority of those in attendance. The faculty comprises 20 professors and 18 lecturers and assistants, 38 in all. The course covers four years of eight months each. The fees of each session are $100, plus $10 for graduation. The Dean is Dr. Robert Reyburn, 2129 F Street. Registration for 1907-8 was 205; graduates, 28. The forty-first session begins Oct. 1, 1908, and ends May 26, 1909.

GEORGIA.

Georgia, population 2,443,719, has four medical colleges; Medical College of Georgia, located in Augusta, population 43,125; Atlanta College of Physicians and Surgeons, Atlanta School of Medicine, and the Georgia College of Eclectic Medicine and Surgery, are in Atlanta, a city of 104,984 population.

Atlanta.

ATLANTA COLLEGE OF PHYSICIANS AND SURGEONS, Butler and Armstrong Streets.—Organized in 1898 by union of the Atlanta Medical College, organized in 1855, and Southern Medical College, organized in 1878. The first class graduated in 1899. It has a faculty of 22 professors and 27 assistants, a total of 49. The course of study covers four years of seven months each. Fees: First and second years, $75 each; third and fourth, $100 each. The Dean is Dr. W. S. Elkins, 29 Luckie Street. Total registration of students for 1907-8 was 234; graduates 29. The eleventh session begins Sept. 28, 1908, and ends May 1, 1909.

ATLANTA SCHOOL OF MEDICINE, Luckie, Barton and Cain Streets.—Organized in September, 1905. The first class, graduated in 1906. The course covers four years of seven months each. It has a faculty of 13 professors and 27 lecturers and assistants, a total of 40. The Proctor is Dr. Edward G. Jones. The total registration for 1907-8 was 274; graduates, 48. The fourth session begins Sept. 25, 1908, and ends April 23, 1909.

GEORGIA COLLEGE OF ECLECTIC MEDICINE AND SURGERY, Tanner Street, near Edgewood Avenue.—Organized in 1877 as the Georgia Eclectic Medical College. In 1884 it acquired the charter of the College of American Medicine and Surgery. It assumed its present name in 1886. The first class graduated in 1878. The Proctor is Dr. E. B. Thomas. Total registration for 1907-8 was 71; graduates 23.

Augusta.

MEDICAL COLLEGE OF GEORGIA, Sixth and Telfair Streets.—Organized in 1828 as the Medical Academy of Georgia, the name being changed to the Medical College of Georgia in 1829. Since 1873 it has been known as the Medical Department of the University of Georgia. Classes were graduated in 1833 and in all subsequent years, except 1862 and 1863, inclusive. The faculty includes 17 professors and 11 assistants, 28 in all. The course is four years of seven months each. Fees for the first two years are $75 each; third year, $100, and $130 for the last year. The Dean is Dr. Joseph Eve Allen. The total enrollment for 1907-8 was 113; graduates, 32. The seventy-seventh session begins Oct. 1, 1908, and ends May 1, 1909.

ILLINOIS.

Illinois, population 5,418,670, has thirteen medical colleges, four of which are night schools, all located in Chicago, a city of 2,049,185 inhabitants, and are as follows: Rush Medical College, Northwestern University Medical School, College of Physicians and Surgeons, Hahnemann Medical College, Bennett College of Eclectic Medicine and Surgery, Hering Medical College, Jenner Medical College, Illinois Medical College, American Medical Missionary College, College of Medicine and Surgery, National Medical University, Chicago College of Medicine and Surgery and Reliance Medical College.

Chicago.

RUSH MEDICAL COLLEGE.—This school was founded in 1837, organized in 1843, was the medical department of Lake Forest University from 1887 until 1898, when it became affiliated with the University of Chicago. The first class graduated in 1844. The faculty is composed of 83 professors, 155 associates, instructors, etc., a total of 238. The requirements for admission are a four-year high school education and, in addition thereto, two years of college work, including courses in college chemistry, physics and biology, and a reading knowledge of German or French. The course covers four years of nine months each. An optional fifth year, consisting of a hospital internship or of a fellowship in one of the departments is offered. All freshman and sophomore studies are given at the University of Chicago. The last two years are given in the clinical buildings at the corner of Wood and Harrison Streets. The total fees are $180 each year. A matriculation fee of $5 is paid but once, and there are incidentals amounting to from $2 to $5 annually. The Deans are Dr. Frank Billings, 100 State Street, and Dr. John M. Dodson, 34 Washington Street. Total registration, 1907-8, was 586; graduates, 70. The sixty-sixth fiscal year begins July 1, 1908.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL, Dearborn Street, between Twenty-fourth and Twenty-fifth Streets.—Organized in 1859 as the Medical Department of Lind University. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869, but retained the name of Chicago Medical College until 1891, when the present name was taken. The faculty comprises 150 professors and 83 lecturers and assistants, a total of 233. The requirements for admission are such as will admit to the College of Liberal Arts of Northwestern University plus one year of college work in physics, chemistry, biology and modern languages. The course covers four years of thirty-six weeks each. The fees are $175 each year. A matriculation fee of $5 is paid but once. The Secretary is Dr. Charles Louis Mix. The total registration for 1907-8 was 533; graduates, 135. The forty-ninth session begins Oct. 6, 1908, and ends about June 15, 1909.

COLLEGE OF PHYSICIANS AND SURGEONS, Honore and Congress Streets.—Organized in 1882. The first class graduated in 1883. It became the Medical Department of the University of Illinois in 1896. The faculty is composed of 42 professors, 156 assistants and instructors, a total of 198. The fees are $145 each for the first two years, $150 for the third, and $175 for the fourth year. The Dean is Dr. William E. Quine, 103 State Street. Total registration for 1907-8 was 501; graduates, 146. The twenty-seventh session begins Oct. 1, 1908, and ends June 9, 1909.

AMERICAN MEDICAL MISSIONARY COLLEGE, 888 Thirty-fifth Place.—Organized in 1895. The first class graduated in 1899. The faculty numbers 27. The course covers four years of nine months each. Total fees are $80 for each of the four years. The Secretary is Dr. E. L. Eggleston, Battle Creek, Mich. Total registration for 1907-8 was 42; graduates, 4. The fourteenth session opens Sept. 15, 1908, and closes June 15, 1909.

CHICAGO COLLEGE OF MEDICINE AND SURGERY, 333 South Lincoln Street.—Organized in 1901 as the American College of Medicine and Surgery (Chicago Eclectic Medical College). The latter part of the name was dropped in 1902 when it became the Medical Department of Valparaiso University. Eclecticism was dropped in 1905. The name was changed to the above in 1907. The course covers four years of eight months each. The faculty consists of 52 professors and 18 lecturers and assistants; total of 70. The annual

tuition fee is $100; matriculation fee, $5. The total registration for 1907-8 was 325; graduates, 70. The eighth session begins Sept. 29, 1908, and ends May 18, 1909. The Secretary is Dr. J. N. Roe.

HAHNEMANN MEDICAL COLLEGE AND HOSPITAL OF CHICAGO, 2811 Cottage Grove Avenue.—Organized in 1859. The first class was graduated in 1861. The Registrar is Dr. W. Henry Wilson. The total registration for 1907-8 was 117; graduates, 43. forty-ninth session begins Sept. 21, 1908, and ends May 15, 1909.

HERING MEDICAL COLLEGE, Homeopathic, Wood and York Streets.—Organized in 1892. The first class graduated in 1893. The Dean is Dr. H. C. Allen. The total registration for 1907-8 was 58; graduates, 16.

ILLINOIS MEDICAL COLLEGE, Corner Washington Boulevard and Halsted Street.—It was organized in 1894. Classes were graduated in 1895 and in all subsequent years. The faculty consists of 38 professors and 20 lecturers and assistants, a total of 58. The course covers four years of seven months each. The fees are about $125 each year. The Dean is Dr. B. B. Eads. The total registration for 1907-8 was 53; graduates, 30. The fourteenth session begins Sept. 2, 1908, and ends Apr. 29, 1909.

BENNETT COLLEGE OF ECLECTIC MEDICINE AND SURGERY, Fulton and Ada Streets.—Organized in 1868. The first class graduated in 1870. The faculty numbers 52. The course covers four years of thirty weeks each. Fees for each year are $100, with a matriculation fee, paid once, of $5. The President is Dr. John D. Robertson. The total registration for 1907-8 was 150; graduates, 28. The next session begins Sept. 22, 1908, and ends May 24, 1909.

COLLEGE OF MEDICINE AND SURGERY, Physio-Medical, 370 South Wood Street.—Organized in 1885 as the Chicago Physio-Medical Institute. The first class graduated in 1886. In 1891 the name was changed to the Chicago Physio-Medical College. In 1899 it took its present name. The Secretary is Dr. William F. Schaare. The total registration for 1907-8 was 35; graduates, 3. The next session begins Sept. 23, 1908, and ends May 15, 1909.

JENNER MEDICAL COLLEGE, a night school, located at 196 East Washington Street.—Organized in 1892. Classes were graduated in 1896 and in all subsequent years. Registrar, Dr. J. Zabokrtsky. Total registration for 1907-8 was 175; graduates, 32. *The Illinois State Board of Health reports that this college is not in good standing.*

NATIONAL MEDICAL UNIVERSITY, a night school, located at 531 Wells Street.—Organized in 1891 as the National Homeopathic Medical College. The first class was graduated in 1902. In 1895 the word "Homeopathic" was dropped. It took the above name in 1900. Registration for 1907-8 was 123. The Dean is Dr. L. D. Rogers. *The Illinois State Board of Health reports that this school is not in good standing.*

RELIANCE MEDICAL COLLEGE. A night school, located at Washington Boulevard and Halsted Street.—Organized in 1907. Registration for 1907-8 was 62. No graduates. The President is Dr. J. F. Burkholder. *The Illinois State Board of Health reports that this school has not been placed in good standing.*

INDIANA.

Indiana, population 2,710,898, has two medical colleges, the Indiana University School of Medicine, and the Physio-Medical College of Indiana. Both are located at Indianapolis, a city of 219,154 people, except that the work of the first two years of the Indiana University School of Medicine is offered also at Bloomington, population 5,000, the seat of the University.

Bloomington and Indianapolis.

INDIANA UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1890, but gave only a premedical course until 1905, when all the subjects of the first two years were offered. In 1907, by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1907 by the merger of the Medical College of Indiana (organized in 1869), the Central College of Physicians and Surgeons (organized in 1879) and the Fort Wayne College of Medicine (organized in 1879) merged into it. The faculty consists of 99 professsors and 76 lecturers, associates and assistants, a total of 175. In 1910, besides a four-year high school education, one year of collegiate work will be required for admission. The work of the first two years may be taken either at Bloomington or at Indianapolis. The clinical work is all done at Indianapolis. The Secretary at Bloomington is Dr. B. D. Myers; at Indianapolis, Dr. Edmund D. Clark, Newton-Claypool Bldg. The total registration for 1907-8 was 308; graduates, 73. The next session begins Sept. 22, 1908, and ends June 23, 1909.

PHYSIO-MEDICAL COLLEGE OF INDIANA. Fourteenth Street and College Avenue.—Organized in 1873. The first class graduated in 1874. The Dean is Dr. C. T. Bedford. The total registration for 1907-8 was 24; graduates, 5. The next session begins Sept. 8, 1908, and ends May 4, 1909.

IOWA.

Iowa, population 2,205,690, has five medical colleges. The College of Medicine of the State University of Iowa and the College of Homeopathic Medicine of the State University of Iowa are located in Iowa City, population 8,497. In Des Moines, population 78,323, is the College of Medicine of Drake University. In Sioux City, population 42,520, is the Sioux City College of Medicine. In Keokuk, population 14,597, is the Keokuk Medical College, College of Physicians and Surgeons.

Des Moines.

DRAKE UNIVERSITY COLLEGE OF MEDICINE.—First two years given on the University Campus, University Avenue, between Twenty-fifth and Twenty-eighth Streets, the clinical years at Fourth and Center Streets. Organized in 1882 as the Iowa College of Physicians and Surgeons. The first class graduated in 1883. In 1887 it became affiliated with and in 1900 became the Medical Department of Drake University. The faculty consists of 18 professors and 26 assistants, a total of 44. The work covers four years of nine months each. The total fees for the first two years are $107 each; for the last two years, $80 each. The Dean is Dr. D. S. Fairchild. The total registration for 1907-8 was 75; graduates, 18. The twenty-sixth session begins Sept. 14, 1908, and ends June 16, 1909.

Iowa City.

STATE UNIVERSITY OF IOWA COLLEGE OF MEDICINE. University Campus.—Organized in 1869. First session began in 1870. First class graduated in 1871. The faculty is made up of 10 professors, 17 lecturers, demonstrators and assistants, a total of 27. The course of study covers four years of thirty-six weeks each. Total fees for each year are $50. The Dean is Dr. James R. Guthrie, Dubuque; Vice-Dean, Dr. Walter L. Bierring, Iowa City. Total number of students registered for 1907-8 was 266; graduates, 43. The thirty-ninth session begins Sept. 20, 1908, and ends June 18, 1909.

STATE UNIVERSITY OF IOWA COLLEGE OF HOMEOPATHIC MEDICINE.—Organized in 1877. The first class graduated in 1878. The faculty is composed of 5 professors and 31 lecturers and assistants, total of 36. The work of the first two years is taken in classes with the students of the College of Medicine of the State University of Iowa. The fees are $50 each year. The Dean is Dr. George Royal. Total registration for 1907-8 was 43; graduates, 9. The thirty-second session begins Sept. 20, 1908, and ends June 18, 1909.

Keokuk.

KEOKUK MEDICAL COLLEGE, COLLEGE OF PHYSICIANS AND SURGEONS. Seventh and Blondeau Streets.—Organized in 1849 as the College of Physicians and Surgeons. The first class was graduated in 1850. In 1854 it became the Medical Department of the State University of Iowa, but resumed its former name in 1870. In 1899 it merged with the Keokuk Medical College (organized in 1890) and assumed the present title. The faculty is composed of 20 professors and 8 assistants and demonstrators, 28 in all. The course covers four years of eight months each. The total fees for the first year are $66; for the second, $61; for the third, $64, and $61 for the last year. The Secretary is Dr. W. B. La Force. Total registration for 1907-8 was 115; graduates, 37. The sixtieth session begins about Sept. 15, 1908, and ends about May 15, 1909.

SIOUX CITY COLLEGE OF MEDICINE. Corner of Fourteenth and Jones Streets.—Organized in 1891. The first class graduated in 1893. The total registration for 1907-8 was 26; graduates, 9. The Dean is Dr. F. E. Franchere.

KANSAS.

Population, 1,612,471, has three medical colleges. Kansas Medical College is in Topeka, population 41,880, and the Western Eclectic College of Medicine and Surgery is at Kansas City. The School of Medicine of the University of Kansas gives its first two years in Lawrence, population 12,123, and the last two years in Rosedale, a suburb of the two Kansas Cities, which together have a population of 260,288.

Kansas City.

WESTERN ECLECTIC COLLEGE OF MEDICINE AND SURGERY. Central and Simpson Avenues.—Organized at Kansas City, Mo., in 1898 as the Eclectic Medical University. Moved to Kansas City, Kan., in 1907. Took the present name in 1908. First class graduated in 1900. The faculty numbers 34. Fees, $90 per year; graduation fee, $15. Course covers four years of about eight months each. The Secretary is Dr. C. E. Frazier. The total registration for 1907-8 was 41; graduates, 11. The eleventh session begins Sept. 7, 1908, and ends April 30, 1909.

Lawrence and Kansas City.

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE.—Organized in 1880. In 1905 it merged with the Kansas City (Mo.) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medico-Chirurgical College, founded in 1897. The faculty, including lecturers and clinical assistants, numbers 79. The course covers four years of about nine months each. The total fees are, for the first two years, $60 per year (and for non-residents of the state $70); for the last two years, $100 per year. The Dean at Lawrence is Dr. Mervin T. Sudler. The Dean at Kansas City is Dr. George Howard Hoxie. The total registration for 1907-8 was 101; graduates, 18. The twenty-ninth session begins Sept. 16, 1908, and ends June 9, 1909.

Topeka.

KANSAS MEDICAL COLLEGE. Twelfth and Tyler Streets.—Organized in 1890. The first class graduated in 1892. It has been the Medical Department of Washburn College since 1893. It has a faculty of 25 professors and 13 lecturers and assistants, a total of 38. The course covers four years of thirty weeks each. Fees, $75 yearly. The Dean is Dr. William S. Lindsay. Total registration for 1907-8 was 69; graduates, 13. The nineteenth session begins Sept. 8, 1908, and ends April 28, 1909.

KENTUCKY.

Kentucky, population 2,320,298, has three medical colleges. They are all situated in Louisville, a city of 226,129 inhabitants, and are as follows: University of Louisville Medical Department. Southwestern Homeopathic Medical College and Louisville National Medical College.

Louisville.

KENTUCKY SCHOOL OF MEDICINE. Sixth and Center Streets.—Organized in 1817 at Lexington as the Medical Department of the Transylvania University. A class was graduated in 1818 and in each subsequent year until 1850. It was succeeded by the Kentucky School of Medicine at Louisville in 1850. The first class graduated

in 1851. Total number of students registered for 1907-8 was 270; graduates, 44. It has just been merged into the University of Louisville Medical Department.

LOUISVILLE AND HOSPITAL MEDICAL COLLEGE. First and Chestnut Streets.—Organized in 1907 by the union of the Louisville Medical College, organized in 1869, with the Hospital College of Medicine, organized in 1874. Total registration for 1907-8 was 335; graduates, 102. It has just been merged into the University of Louisville Medical Department.

UNIVERSITY OF LOUISVILLE MEDICAL DEPARTMENT. Eighth and Chestnut Streets.—Organized in 1837 as the Louisville Medical Institute. The first class graduated in 1838, and a class graduated in each subsequent year except 1863. In 1846 the present name was assumed. In 1907 it absorbed the Kentucky University Medical Department. It has a faculty of 28 professors and 27 lecturers and assistants, a total of 55. The course covers four years of thirty weeks each. The fees are $75 each year. The Dean is Dr. T. C. Evans. The total registration for 1907-8 was 331; graduates, 100. The next session begins Nov. 1, 1908, and ends May 31, 1909.

SOUTHWESTERN HOMEOPATHIC COLLEGE, Floyd and Walnut Streets.—Organized in 1892. The first class graduated in 1894. It has a faculty of 18 professors and 10 lecturers and assistants, 28 in all. The curriculum covers four years of seven months each. Total fees: First and second years, $80; third, $70, and $65 for the fourth. The Dean is Dr. Geo. S. Coon. Total number of students for 1907-8 was 13; graduates, 2. The sixteenth session begins Oct. 6, 1908, and ends May 19, 1909.

LOUISVILLE NATIONAL MEDICAL COLLEGE. Colored. 112 West Green Street.—Organized in 1888. The first class graduated in 1889. The faculty numbers 22. The course covers four years of seven months each. The fees are $58, $58, $55 and $50 for the four years, respectively. The Dean is Dr. E. S. Porter. Total registration for 1907-8 was 36; graduates, 6. The next session begins Oct. 6, 1908, and ends May 21, 1909.

LOUISIANA.

Louisiana, having a population of 1,539,449, contains two medical colleges: Medical Department of the Tulane University of Louisiana and Flint Medical College of New Orleans University. They are both situated in New Orleans, a city of 314,146 people.

New Orleans.

MEDICAL DEPARTMENT OF THE TULANE UNIVERSITY OF LOUISIANA. University Campus and 1551 Canal Street.—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years, except 1863-1865, inclusive. It was transferred to Medical Department of the University of Louisiana in 1847 and became the Medical Department of the Tulane University in 1884. The faculty numbers 69. The course covers four years of seven months each. Total fees are $135, $135, $140 and $170, respectively, for the four years. The Dean is Dr. Isadore Dyer. The total registration for 1907-8 was 535; graduates, 102. The seventy-fifth session begins Oct. 1, 1908, and ends May 19, 1909.

FLINT MEDICAL COLLEGE OF NEW ORLEANS UNIVERSITY. Colored. 1566 Canal Street.—Organized in 1889 as the Medical College of New Orleans University. A class was graduated in 1892 and in each subsequent year, except 1896. Took the above name in 1901. The faculty consists of 6 professors, 9 lecturers and instructors, 15 in all. The course covers four years of thirty weeks each. Total fees, $50 each year. The Dean is Dr. A. D. Bush, 1566 Canal Street. Total registration for 1907-8 was 34; graduates, 8. The nineteenth session begins Sept. 28, 1908, and ends May 5, 1909.

MAINE.

Maine, population 714,494, has one medical college, located in Portland, population 55,167.

Portland.

MEDICAL SCHOOL OF MAINE. The medical department of Bowdoin College. The first two years are given at Bowdoin College, Brunswick, the last two at Portland, building located on Chadwick Street. —Organized in 1820. The first class graduated in 1820. The course covers four years of eight months each. The total fees are $120 for the first year; for the second and third, $110, and $110 for the fourth year. The Dean is Dr. Alfred Mitchell, Brunswick. Total number of students in 1907-8 was 93; graduates, 29. The eighty-ninth session begins Oct. 22, 1908, and ends June 23, 1909.

MARYLAND.

Maryland, with a population of 1,275,434, contains seven medical colleges, all located in Baltimore, a city with 553,669 inhabitants. They are as follows: School of Medicine of the University of Maryland, College of Physicians and Surgeons, Baltimore Medical College, Women's Medical College, Atlantic Medical College, Johns Hopkins Medical School and Maryland Medical College.

Baltimore.

JOHNS HOPKINS MEDICAL SCHOOL. Washington and Monument Streets.—This is the Medical Department of Johns Hopkins University, and was organized in 1893. The first class was graduated in 1897 and a class was graduated each subsequent year. The faculty consists of 13 professors and 90 clinical professors, etc., a total 103. The requirements for admission demand that the applicant either has (a) completed the chemical-biologic course which leads to the A.B. degree in the university; (b) graduated at an approved college or scientific school and has a knowledge of French and German, physics, chemistry and biology, such as may be obtained from a year's course. The course extends over four years of eight and one-half months each. The charge for tuition is $200 per annum. The Dean is Dr. William H. Howell, 232 West Lanvale Street. Total registration for 1907-8 was 281; graduates, 68. The sixteenth session begins Oct. 6, 1908, and ends June 14, 1909.

COLLEGE OF PHYSICIANS AND SURGEONS. Calvert and Saratoga Streets.—Organized in 1872. The first class graduated in 1873. In 1878 it united with Washington University School of Medicine. The faculty numbers 55. The work covers four years of eight months each. Total fees are $155 and $185 for the respective years. The Dean is Dr. Charles F. Bevan. The total number of students registered in 1907-8 was 253; graduates, 68. The thirty-seventh session begins Oct. 1, 1908, and ends June 1, 1909.

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE. Lombard and Greene Streets.—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine. The faculty numbers 62. The course covers four years of eight months each. The total fees for the first two years are $135 each; for the third year $125, and $155 for the final year. The Dean is Dr. R. Dorsey Coale. The total number of students registered in 1907-8 was 316; graduates, 73. The one hundred and second session begins Oct. 1, 1908, and ends June 1, 1909.

BALTIMORE MEDICAL COLLEGE. Madison Street and Linden Avenue.—Organized in 1881. The first class graduated in 1882. The faculty numbers 69. The course covers four years of eight months each. The Dean is Dr. David Streett. The total number of students registered in 1907-8 was 323; graduates, 82. The twenty-eighth session begins Sept. 21, 1908, and ends May 21, 1909.

WOMAN'S MEDICAL COLLEGE OF BALTIMORE. McCulloh and Hoffman Streets.—Organized in 1882. Classes graduated in 1883 and in each subsequent year, except 1898. The faculty numbers 34. The course covers four years of eight months each. The fees for the first three years are $106 each, and $111 for the last year. The Dean is Dr. John R. Abercrombie, 827 North Eutaw Street. The total registration for 1907-8 was 28; graduates, 11. The twenty-seventh session begins Oct. 1, 1908, and ends May 31, 1909.

MARYLAND MEDICAL COLLEGE. 1114 West Baltimore Street.—Organized in 1898. The first class graduated in 1899. The faculty is composed of 13 professors and 9 lecturers and assistants, a total of 22. The course covers four years of eight months each. Matriculation fee, $5; total fees first three years, $75 each; fourth year, $105. The Dean is Dr. Harry Gross. The total registration for 1907-8 was 100; graduates, 20. The next session begins Oct. 1, 1908, and ends June 1, 1909.

ATLANTIC MEDICAL COLLEGE. Mount Street, north of Riggs Avenue.—Organized in 1891 as the Southern Homeopathic Medical College. In 1907 it assumed the above name and became non-sectarian. The Dean is Dr. Eldridge C. Price. The total registration for 1907-8 was 39; graduates 22. The next session begins Oct. 1, 1908, and ends June 3, 1909.

MASSACHUSETTS.

Massachusetts, population 3,043,346, has four medical colleges: Medical School for Harvard University, Boston University School of Medicine, College of Physicians and Surgeons and Tufts College Medical School. They are all situated in Boston, a city of 602,278 inhabitants.

Boston.

MEDICAL SCHOOL OF HARVARD UNIVERSITY. Longwood Avenue.—Organized in 1782. The first class graduated in 1788. It has a faculty of 32 professors and 134 associates, assistants, etc., a total of 166. Candidates for admission "must present a degree in arts, literature, philosophy or science from a recognized college or scientific school, with the exception of such persons as may be admitted by special vote of the faculty." Fees: Matriculation, $5; $200 each year. The Dean is Dr. William L. Richardson, 688 Boylston Street. The total registration for 1907-8 was 298; graduates, 70. The 127th session begins Oct. 1, 1908, and ends June 30, 1909.

BOSTON UNIVERSITY SCHOOL OF MEDICINE. 80 East Concord Street.—Organized in 1873. In 1874 the New England Female Medical College, founded in 1848, was merged into it. The first class graduated in 1874. The faculty includes 28 professors, 33 associates, etc., a total of 61. The course covers four years of eight months each. Total fees for the first, second and third years, $127 each, and for the last year $155. The Dean is Dr. John P. Sutherland, 302 Beacon Street. Total registration for 1907-8 was 102; graduates, 19. The thirty-sixth session begins Oct. 1, 1908, and ends June 2, 1909.

TUFTS COLLEGE MEDICAL SCHOOL. 416 Huntington Avenue.—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. It has a faculty of 34 professors and 67 assistants, lecturers, etc., a total of 101. The course covers four years of eight months each. The total fees are $150 each year. The Secretary is Dr. Frederic M. Briggs, 31 Massachusetts Avenue. Total number of students for 1907-8 was 371; graduates, 56. The fifteenth session begins Sept. 30, 1908, and ends May 26, 1909.

COLLEGE OF PHYSICIANS AND SURGEONS. 517 Shawmut Avenue.—Organized in 1880. The first class graduated in 1882. The Dean is Dr. C. H. Cobb. The total registration for 1907-8 was 162; graduates, 26.

MICHIGAN.

Michigan, population 2,584,533, has four medical colleges. Two of these, University of Michigan Department of Medicine and Surgery and the Homeopathic College of the University of Michigan, are located at Ann Arbor, a city of 14,645 people. Detroit, a city of 353,535 inhabitants, contains two medical colleges, the Detroit College of Medicine and the Detroit Homeopathic College.

Ann Arbor.

UNIVERSITY OF MICHIGAN DEPARTMENT OF MEDICINE AND SURGERY.—Organized in 1850. The first class graduated in 1851. It has a faculty composed of 32 professors, 33 associates, instructors, etc., a total of 65. Beginning with the session of 1909-10 the en-

trance requirements will be two years of college work, including a year of chemistry, physics and biology, including laboratory work, and a reading knowledge of one modern language. The curriculum embraces four years of nine months each. The total fees for Michigan students for the entire course of four years is $350 and for others about $400. The Dean is Dr. Victor C. Vaughan. The total registration for 1907-8 was 390; graduates, 72. The fifty-ninth session begins Sept. 29, 1908, and ends June 24, 1909.

UNIVERSITY OF MICHIGAN HOMEOPATHIC COLLEGE.—Organized in 1875. The first class graduated in 1877. It has a faculty of 8 professors and 4 assistants, total 12, besides a part of the teaching force from the Department of Medicine and Surgery. The total fees for Michigan students are about $240 for the four years, and for other students about $295. The Dean is Dr. W. B. Hinsdale. The total registration for 1907-8 was 82; graduates, 15. The thirty-third session begins Sept. 29, 1908, and ends June 24, 1909.

Detroit.

DETROIT COLLEGE OF MEDICINE, St. Antoine, Catherine and Mullett Streets and Gratiot Avenue.—Organized in 1885 by consolidation of Detroit Medical College, organized in 1868, and the Michigan College of Medicine, organized in 1880. The first class graduated in 1886. The faculty embraces 28 professors, 80 lecturers, instructors, etc., a total of 108. The course covers four years of eight months each. Fees: Matriculation, paid once, $5; tuition, each term, $65; hospital and laboratory tickets, each $10, and diploma fee, $30. The Registrar is Dr. F. B. Walker. The total registration for 1907-8 was 146; graduates, 30. The twenty-fourth session begins Sept. 16, 1908, and ends May 27, 1909.

DETROIT HOMEOPATHIC COLLEGE, Lafayette Avenue and Third Street.—Organized in 1899. A class was graduated in 1900 and in each subsequent year. It has a faculty of 36. The course embraces four years of eight months each. Fees: From $70 to $90 per year. The Dean is Dr. D. A. MacLachlan; Registrar, J. M. Griffin. Total registration for 1907-8 was 22; graduates, 6. The tenth session begins Sept. 15, 1908, and ends May 15, 1909.

MINNESOTA.

Minnesota, population 2,025,615, contains two medical colleges, the College of Medicine and Surgery of the University of Minnesota and the College of Homeopathic Medicine and Surgery of the University of Minnesota. They are situated in Minneapolis. Minneapolis and St. Paul are practically one city, and have a combined population of 477,640.

Minneapolis.

COLLEGE OF MEDICINE AND SURGERY, UNIVERSITY OF MINNESOTA.—Organized in 1883. Reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital Medical College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons, organized in 1883, was merged. The faculty includes 45 professors and clinical professors and 69 associate professors, assistants, etc., a total of 114. The curriculum covers four years of nine months each. The entrance requirements are two years of university work in addition to four years of high school work. Total fees for each year, $100; microscope rental, $4 to $7 per annum. The Dean is Dr. F. F. Wesbrook. The total registration for 1907-8 was 166; graduates, 32. The twenty-first session begins Sept. 15, 1908, and ends June 5, 1909.

COLLEGE OF HOMEOPATHIC MEDICINE AND SURGERY, UNIVERSITY OF MINNESOTA.—Organized in 1886 as the Minnesota Homeopathic Medical College. The first class graduated in 1887. In 1888 it became the Homeopathic Department of the University of Minnesota. The faculty comprises 26 professors and 49 assistants, 75 in all. Instruction in the primary branches is received in common with the students of the College of Medicine and Surgery. The course covers four years of nine months each. The total fees for the first two years are $100 each and $80 each for the last two years. The Dean is Dr. Eugene L. Mann. Total registration for 1907-8 was 6; graduates, 3. The next session begins Sept. 15, 1908, and ends June 5, 1909.

MISSISSIPPI.

Mississippi, population 1,708,272, has two medical colleges: the Medical Department of the University of Mississippi is located at Oxford, a city of 2,000 inhabitants, and at Vicksburg, population 15,710. The Mississippi Medical College is located at Meridian, population 20,503.

Meridian.

MISSISSIPPI MEDICAL COLLEGE, Fifth Street and Twenty-fourth Avenue.—Organized in 1906. The first class graduated in 1907. The faculty numbers 16. The Dean is Dr. T. A. Barber. The total registration for 1907-8 was 105; graduates, 11. The third session begins Oct. 1, 1908, and ends May 1, 1909.

Oxford and Vicksburg.

UNIVERSITY OF MISSISSIPPI MEDICAL DEPARTMENT.—Organized in 1903. Gave only the first two years of the medical course until 1908, when a clinical department was organized at Vicksburg. The course covers four years of eight and a half months each. The work of the first two years are given at Oxford and the last two at Vicksburg. The faculty numbers 9. Dr. W. S. Leathers is the Acting Dean. The total registration for 1907-8 was 28. The sixth session begins Sept. 8, 1908, and ends June 8, 1909.

MISSOURI.

Missouri, population 3,363,153, has eleven medical colleges. St. Louis, population 649,320, contains seven of these, viz., St. Louis College of Physicians and Surgeons, American Medical College, Homeopathic Medical College of Missouri, Medical Department St. Louis University, Washington University Medical Department, Barnes Medical College and the Hippocratean College of Medicine. Kansas City, which, with Kansas City, Kan., has a total population of 260,288, has two colleges, namely: University Medical College and the Hahnemann Medical College of Kansas City. Ensworth Medical College is located in St. Joseph, population 118,004. The Department of Medicine of the University of Missouri is at Columbia, a town of 7,800 people.

Columbia.

DEPARTMENT OF MEDICINE OF THE UNIVERSITY OF MISSOURI.—Organized at St. Louis in 1845; was discontinued in 1859, but was reorganized at Columbia in 1872. The faculty includes 14 professors, 14 assistant professors, lecturers, etc., a total of 28. The course covers four years of nine months each. The candidate for entrance must present, beside the diploma from a recognized four-year high school, credentials of college work as follows: English, 6 hours; German, 6 hours; general zoology, 6 hours; general physics, 6 hours; inorganic chemistry, 6 hours. There is no charge for tuition, the only expenses being a library fee of $10 each year and small laboratory fees. The Dean is Dr. A. W. McAlester. Total registration of students for 1907-8 was 65; graduates, 8. The next session begins Sept. 14, 1908, and ends June 2, 1909.

Kansas City.

UNIVERSITY MEDICAL COLLEGE OF KANSAS CITY, 911 East Tenth Street.—Organized in 1881 as the University of Kansas City Medical Department. The first class graduated in 1882. It was reorganized in 1888 under the present title. Its faculty comprises 30 professors and 35 lecturers and assistants, a total of 65. The course of study covers four years of thirty weeks each and the work is graded. The total fees for each year are $100. The Dean is Dr. J. E. Logan, 1208 Wyandotte Street. The total registration for 1907-8 was 192; graduates, 64. The twenty-seventh session begins Sept. 9, 1908, and ends May 14, 1909.

KANSAS CITY HAHNEMANN MEDICAL COLLEGE, 1020 East Tenth Street.—Organized in 1888 as the Kansas City Homeopathic Medical College. The first class graduated in 1899. In 1902 it united with the Hahnemann Medical College of the Kansas City University, taking the present title. It has a faculty of 43. The course covers four years of seven months each. The Dean is Dr. Frank Elliott, 1023 Grand Avenue. Total registration for 1907-8 was 62; graduates, 15. The next session begins Sept. 8, 1908, and ends May 8, 1909.

St. Joseph.

THE ENSWORTH MEDICAL COLLEGE, Seventh and Jule Streets.—Organized in 1876 as the St. Joseph Hospital Medical College. In 1882 it merged with the College of Physicians and Surgeons to form the St. Joseph Medical College. In 1888 changed name to Ensworth Medical College. In 1905 merged with the Central Medical College, organized in 1894, to form the Ensworth-Central Medical College. In 1907 the present title was resumed. The faculty numbers 34. The course covers four years of eight months each. The fees are $75 for each of the first three years; the fourth year, $95. The Secretary is Dr. T. E. Potter. Total registration for 1907-8 was 91; graduates, 25. The next session begins Sept. 7, 1908, and ends May 1, 1909.

St. Louis.

WASHINGTON UNIVERSITY MEDICAL DEPARTMENT, 1806 Locust Street.—Organized in 1842 as the Medical Department of St. Louis University. In 1855 it was chartered as an independent institution under the name of St. Louis Medical College. The first class graduated in 1843. In 1891 it became the Medical Department of Washington University. In 1899 it absorbed the Missouri Medical College. The faculty comprises 45 professors, 45 lecturers and instructors, a total of 90. The course is four years of eight months each. The total fees are: For the first year, $132.75; second, $133.75; third, $115.25, and for the fourth, $101.25. The Dean is William H. Warren, Ph.D. The total registration for 1907-8 was 208; graduates, 59. The next session begins Sept. 28, 1908, and ends May 26, 1909.

ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE, Grand Avenue and Caroline Street.—Organized in 1901 by union of Marion-Sims Medical College, organized in 1890, and Beaumont Hospital Medical College, organized in 1886. It became the Medical Department of St. Louis University in 1903. The faculty is composed of 38 professors, 67 lecturers and assistants, a total of 105. The curriculum covers four years of seven months each. The total fees for the first year are $100; for the second, third and fourth, $95 each. The Dean is Dr. E. P. Lyon. The total registration for 1907-8 was 241; graduates, 68. The next session begins Oct. 1, 1908, and ends May 22, 1909.

ST. LOUIS COLLEGE OF PHYSICIANS AND SURGEONS, Jefferson Avenue and Gamble Street.—Organized in 1869. Classes graduated in 1870 and in each subsequent year until 1873, when it suspended. It was reorganized in 1879. Classes graduated in 1880 and subsequent years. It has a faculty of 25 professors, 19 lecturers, instructors, etc., a total of 44. The course covers four years of seven months each. Total fees for the first year are $80; second and third, $75 each, and $85 for the fourth year. The Dean is Dr. Waldo Briggs, 2600 Gamble Street. Total registration for 1907-8 was 164; graduates, 49.

BARNES MEDICAL COLLEGE, Garrison and Lawton Avenues.—Organized in 1892. Classes graduated in 1893 and in all subsequent years, except 1899. It has a faculty of 39 professors and 30 lecturers and assistants, a total of 69. The course of study covers four years of eight months each. The total fees are $100 each year. The Secretary is Dr. C. M. Ament, 1025 Missouri Trust Building. Total registration for 1907-8 was 323; graduates, 78. The seventeenth session begins Sept. 9, 1908, and ends May 9, 1909. *The Missouri State Board of Health reports that this college is not now in good standing.*

HOMEOPATHIC MEDICAL COLLEGE OF MISSOURI, Jefferson Avenue and Howard Street.—Organized in 1859. Classes graduated in 1860 and in all subsequent years, except 1862 to 1864, inclusive.

It has a faculty of 18 professors and 9 assistants, total 27. The curriculum covers four years of seven months each. Fees: First year, $80; second, $75; third, $60, and $75 for the fourth year. The Dean is Dr. L. C. McElwee, 1221 North Grand Avenue. Total registration for 1907-8 was 27; graduates, 9. The next session begins Sept. 8, 1908, and ends April 23, 1909.

AMERICAN MEDICAL COLLEGE. Eclectic. 407 South Jefferson Avenue.—Organized in 1873. Two classes graduated each year from 1874 to 1883, inclusive. Since then one class has graduated each year. The Dean is Dr. P. C. Clayberg. The total registration for 1907-8 was 41; graduates, 8.

HIPPOCRATEAN COLLEGE OF MEDICINE. 3412 Morgan Street.—Organized in 1907 as a night school. During 1907-8 it had 34 students. The Dean is Dr. Emory Lanphear. *The Missouri State Board of Health reports that this college is not in good standing.*

NEBRASKA.

Nebraska, population 1,068,484, has four medical colleges: The University of Nebraska College of Medicine and John A. Creighton Medical College at Omaha, population 124,167, and Lincoln Medical College, and the Nebraska College of Medicine at Lincoln, population 48,232.

Lincoln and Omaha.

COLLEGE OF MEDICINE, UNIVERSITY OF NEBRASKA. Eleventh and R Streets, Lincoln, and Twelfth and Pacific Streets, Omaha.—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. The first two years are given at Lincoln; the last two at Omaha. The faculty is composed of 37 professors and 45 lecturers and instructors, total 82. For admission one full year of college work above the high school course required. The fees are approximately $100 per annum. The Dean is Henry B. Ward, Ph.D., University of Nebraska, Lincoln. The total registration for 1907-8 was 98; graduates, 24. The next session begins Sept. 16, 1908, and ends May 20, 1909.

Lincoln.

LINCOLN MEDICAL COLLEGE. Eclectic. 121 South Fourteenth Street. It is the Medical Department of Cotner University.—Organized in 1890. The first class graduated in 1891. The faculty numbers 38. The course of study covers four years of thirty weeks each. The total fees for the first year are $80; second and third, $75 each, and $85 for the fourth year, or $250 for all four years together. The Secretary is Dr. R. H. Spradling, 1315 O Street. The total registration for 1907-8 was 50; graduates, 18. The nineteenth session begins Sept. 7, 1908, and ends June 7, 1909.

NEBRASKA COLLEGE OF MEDICINE. 1735 O Street. Affiliated with the Nebraska Wesleyan University.—Organized in 1905. The first class graduated in 1907. The Dean is Dr. James F. Stevens. The total registration for 1907-8 was 34; graduates, 2. The next session begins Sept. 14, 1908, and ends June 9, 1909.

Omaha.

JOHN A. CREIGHTON MEDICAL COLLEGE. Fourteenth and Davenport Streets. It is the Medical Department of Creighton University.—Organized in 1892. The first class graduated in 1895. It has a faculty of 36 professors and 16 associates, lecturers and assistants, a total of 52. Beginning in 1910, two years of work in a college of liberal arts will be required for admission. The course of study embraces four years of eight months each. The total fees for the first two years are $90 each, and $85 for each of the last two years. The Dean is Dr. D. C. Bryant, McCague Building. Total number of students registered in 1907-8 was 158; graduates, 41. The seventeenth session begins Sept. 1, 1908, and ends May 1, 1909.

NEW HAMPSHIRE.

New Hampshire, population 432,624, has one medical college, located at Hanover, population 1,797.

Hanover.

DARTMOUTH MEDICAL SCHOOL.—Organized as New Hampshire Medical Institute in 1797. The first class graduated in 1798. It is the Medical Department of Dartmouth College. The faculty is made up of 18 professors and 4 instructors, a total of 22. The course covers four years of seven and a half months each. The fees are $100 each year. The Dean is Dr. William T. Smith. The total registration for 1907-8 was 58; graduates, 9. The work of the first and second years begins with that of the academic department Sept. 24, 1908, and ends June 30, 1909; for the advanced classes the course begins Aug. 4, 1908, and ends March 26, 1909.

NEW YORK.

New York State, population 8,226,990, has eleven medical colleges. Eight of these, College of Physicians and Surgeons (Columbia University), Long Island College Hospital, New York Homeopathic Medical College and Hospital, New York Medical College and Hospital for Women, Eclectic Medical College of the City of New York, Cornell University Medical College, the University and Bellevue Hospital Medical College, and Fordham University School of Medicine, are located in New York City, population 4,113,043. Albany Medical College is located in Albany, a city of 98,537 people. The University of Buffalo Medical Department is situated in Buffalo, population of 381,819. The College of Medicine, Syracuse University, is in Syracuse, a city of 118,880 inhabitants.

Albany.

ALBANY MEDICAL COLLEGE. Lancaster and Jay Streets.—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. The faculty is composed of 17 professors and 46 lecturers, assistants, etc., a total of 63. The curriculum covers four years of seven and one-half months each. Fees: First year, $130; second year, $145; third year, $120, and fourth year, $130. The Registrar is Dr. Willis G. Tucker. The total registration for 1907-8 was 180; graduates, 40. The seventy-first session begins Sept. 23, 1908, and ends May 18, 1909.

Buffalo.

UNIVERSITY OF BUFFALO MEDICAL DEPARTMENT. High Street, near Main.—Organized in 1846. The first class graduated in 1847. It absorbed the Medical Department of Niagara University in 1898. The faculty is composed of 39 professors and 50 lecturers, assistants, etc., a total of 89. The course covers four years of eight months each. The tuition is $125 each year; this does not include laboratory fees. The Dean is Dr. Matthew D. Mann, 37 Allen Street. Total registration for 1907-8 was 176; graduates, 37. The sixty-third session begins Sept. 28, 1908, and ends May 28, 1909.

New York.

COLLEGE OF PHYSICIANS AND SURGEONS IN THE CITY OF NEW YORK. 437 West Fifty-ninth Street.—Organized in 1807 by the regents of the University of the State of New York as their medical department. The first class graduated in 1811. Affiliated with Columbia College in 1814 and was permanently connected in 1860, when it became the Medical Department of Columbia College. That institution became Columbia University in 1891. The faculty is composed of 48 professors and 115 instructors, demonstrators, etc., a total of 163. The work covers four years of eight months each. The Dean is Dr. Samuel W. Lambert. The total fees for the first year are $225; for the second and third, $250, and $275 for the fourth year. Total registration for 1907-8 was 322; graduates, 81. The one hundred and second session begins Sept. 23, 1908, and ends June 6, 1909.

CORNELL UNIVERSITY MEDICAL COLLEGE. Ithaca, and First Avenue and Twenty-eighth Street, New York.—Organized in 1898. The first class was graduated in 1889. The work of the first two years may be taken either in Ithaca or New York. The faculty is composed of 48 professors and 133 assistants, lecturers, instructors, etc., a total of 181. In and after 1909 all candidates for admission must have at least such knowledge of physics and inorganic chemistry as may be obtained in college by a year's course in these subjects when accompanied by laboratory work; and in and after 1910 all candidates for admission must also possess a similar knowledge of biology. Fees: First year, $190; second and third, $185 each, and $200 for the fourth year. The Dean is Dr. William M. Polk. Total registration for 1907-8 was 316; graduates, 58. The eleventh session begins Sept. 30, 1908, and ends June 9, 1909.

ECLECTIC MEDICAL COLLEGE OF THE CITY OF NEW YORK. 239 East Fourteenth Street.—Organized in 1865. The first class graduated in 1867. It has a faculty of 18 professors and 21 lecturers, demonstrators, etc., 39 in all. The work covers four years of seven months each. The total fees: For each of the first three years, $125, and $155 for the fourth year. The Dean is Dr. George W. Roskowitz. Total registration for 1907-8 was 56; graduates, 7. The forty-fourth session begins Sept. 15, 1908, and ends May 15, 1909.

FORDHAM UNIVERSITY SCHOOL OF MEDICINE. Third and Pelham Avenues.—Organized in 1905. The faculty consists of 32 professors and 33 lecturers and assistants, a total of 65. The course of instruction covers four years of nine months each. Fees: First year, $190; second and third years, $185 each. The Dean is Dr. James J. Walsh. The total registration for 1907-8 was 30. No class has yet been graduated. The fourth session begins Sept. 24, 1908, and ends May 20, 1909.

LONG ISLAND COLLEGE HOSPITAL. Henry Street, near Atlantic Avenue, Brooklyn.—Organized in 1858. The first class graduated in 1860. It has a faculty of 9 professors and 90 assistants, instructors, etc., a total of 99. The course covers four years of thirty weeks each. Fees: First year, $195; second, $200; third $160, and $195 for the fourth year. The Secretary is Dr. Joseph H. Raymond. Total registration, 1907-8, was 337; graduates, 89. The fifty-first session begins Sept. 28, 1908, and ends May 14, 1909.

NEW YORK HOMEOPATHIC MEDICAL COLLEGE AND HOSPITAL. Eastern Boulevard, between Sixty-third and Sixty-fourth Streets.—Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College for the State of New York. The present title was assumed in 1869. The first class graduated in 1861. It has a faculty of 30 professors and 44 lecturers, instructors, etc., 74 in all. The course covers four years of seven months each. Total fees for the first year, $130; second, $130; third, $125, and $155 for the fourth year. The Secretary is Dr. John W. Dowling, 56 West Fiftieth Street. Total registration for 1907-8 was 80; graduates, 18. The fifty-first session begins Oct. 6, 1908, and ends May 6, 1909.

NEW YORK MEDICAL COLLEGE AND HOSPITAL FOR WOMEN. 17-19 West One Hundred and First Street.—Organized in 1863. The first class graduated in 1864. The Dean is Dr. Helen Cooley Palmer. The total registration for 1907-8 was 20; graduates, 3.

UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE. First Avenue and Twenty-sixth Street.—Organized in 1898 by the union of the New York University Medical College, organized in 1841, and the Bellevue Hospital Medical College, organized in 1861. It is the Medical Department of New York University. The faculty is composed of 33 professors and 72 instructors, etc., in all 105. The course covers four years of eighth months each. Fees: First year, $185; second and third, $180 each, and $195 for the fourth year. The Dean is Dr. Egbert Le Fevre. Total registration for 1907-8 was 503; graduates, 88. The eleventh session begins Sept. 30, 1908, and ends June 2, 1909.

Syracuse.

SYRACUSE UNIVERSITY COLLEGE OF MEDICINE. 619 West Genesee Street.—Organized in 1872 as the College of Physicians and Surgeons of Syracuse University. The present title was assumed in 1875. In 1872 Geneva Medical College was merged with it. The first class was graduated in 1873. The faculty is composed of 14 professors and 37 lecturers, instructors, etc., in all 51. The course

covers four years of eight months each. The average total fees for each year are $167.25. The Dean is Dr. John L. Heffron. The total registration for 1907-8 was 150; graduates, 43. The thirty-seventh session begins Oct. 6, 1908, and ends June 10, 1909.

NORTH CAROLINA.

North Carolina, population, 2,059,326, has four medical schools, one of which gives only the first two years of the medical course. The Medical Department of the University of North Carolina is located at Chapel Hill, population 1,100, and at Raleigh, population 14,225. The Leonard School of Medicine is at Raleigh. The North Carolina Medical College is at Charlotte, population 22,009. Wake Forest School of Medicine is at Wake Forest, population 823.

Chapel Hill and Raleigh.

UNIVERSITY OF NORTH CAROLINA MEDICAL DEPARTMENT.—Organized in 1890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a department at Raleigh. The first class graduated in 1903. The faculty is composed of 21 professors and 23 lecturers, assistants, etc., a total of 44. It is a member of the Association of American Medical Colleges. Total fees are $85 per year. Board, room, light and heat may be had for from $84 to $102 per college year. The Dean of the Department at Chapel Hill is Dr. G. H. Manning; of the Department at Raleigh, Dr. H. A. Royster. The total registration for 1907-8 was 114; graduates, 12. The nineteenth session begins Sept. 7, 1908, and ends May 29, 1909.

Charlotte.

NORTH CAROLINA MEDICAL COLLEGE. Church and Sixth Streets.—Organized in 1887 at Davidson as the Davidson School of Medicine. It was a preparatory school only, not granting any degrees until 1893, when it was chartered under its present name. The first class was graduated in 1893. Removed to Charlotte in 1907. The faculty numbers 24. The course covers four years of eight months each. Fees: First three years, $85 each, and $100 for the fourth year. The Dean is Dr. Walter O. Nisbet. The total registration for 1907-8 was 82; graduates, 6. The next session begins Sept. 8, 1908, and ends April 20, 1909.

Raleigh.

LEONARD SCHOOL OF MEDICINE.—Colored. This department of Shaw University was established in 1882. Classes were graduated in 1886, 1888 and in all subsequent years. It has a faculty of 10. The course covers four years of seven months each. The total fees for each year are $75. The dormitory plan is adopted generally, and board and room cost $2 a week. The Dean is Dr. James McKee. Total registration for 1907-8 was 146; graduates, 43. The 27th session begins Oct. 1, 1908, and ends May 13, 1909.

Wake Forest.

WAKE FOREST COLLEGE SCHOOL OF MEDICINE.—This school was organized in 1902. The faculty numbers 10. It only gives the first two years of the medical course, which constitute a part of the course for the B.S. degree. Each annual course extends over nine months. The fees are $100 each year. The Dean is Dr. Watson S. Rankin. The total registration for 1907-8 was 40. The seventh session begins Sept. 1, 1908, and ends May 25, 1909.

NORTH DAKOTA.

North Dakota, population 383,226, has one medical college, the College of Medicine of the State University of North Dakota, which is situated at University near Grand Forks.

University.

UNIVERSITY OF NORTH DAKOTA COLLEGE OF MEDICINE.—Organized in 1905. The faculty is composed of 5 professors and 13 instructors, a total of 18. The course consists of two years' academic work and two years of medical college subjects, occupying nine months each year. The total fees for each of the medical subject years are $50. The Dean is M. A. Brannon, A. M. The total registration for 1907-8 was 20. The fourth session begins Sept. 22, 1908, and ends June 17, 1909.

OHIO.

Ohio, population 4,448,677, has eight medical colleges. Three of these, the Medical Department University of Cincinnati, Eclectic Medical Institute, and Pulte Medical College, are located in Cincinnati, a city of 345,230 inhabitants. Cleveland, population 460,327, contains three medical schools: Western Reserve University Medical College, Cleveland College of Physicians and Surgeons and the Cleveland Homeopathic Medical College. Columbus, population 145,414, contains one medical college, the Starling-Ohio Medical College. Toledo, with 159,980 people, has one medical school, the Toledo Medical College.

Cincinnati.

MEDICAL COLLEGE OF OHIO.—This is the Medical Department of the University of Cincinnati, and was organized in 1819. It has a faculty of 28 professors and 33 lecturers and assistants, a total of 61. The course covers four years of eight months each. The lecture fees are $125 each year; a matriculation fee of $5, payable but once, and a graduation fee of $25. Total registration of students for 1907-8 was 117; graduates, 26. The Secretary is Dr. Albert V. Phelps. The next session begins Oct. 1, 1908, and ends June 5, 1909.

MIAMI MEDICAL COLLEGE.—This school was organized in 1852 and has a faculty of 24 professors and 26 lecturers and demonstrators, a total of 50. The curriculum embraces four years of eight months each. The total fees are, for the first year, $130; for the second and third, $125, and $150 for the fourth year. The Dean is Dr. J. C. Oliver, 628 Elm St. The total registration for 1907-8 was 70; graduates, 16. The next session opens Oct. 1, 1908, and closes June 5, 1909.

Note.—The two above colleges have just merged, the new college thus formed to be the Medical Department of the University of Cincinnati. Both colleges will run as co-ordinate schools during 1908-9. The new college will begin operation in the fall of 1909.

ECLECTIC MEDICAL INSTITUTE, 1009 Plum Street.—Organized in 1832 at Worthington as the Worthington Medical College. Removed to Cincinnati in 1843. In 1845 it was chartered under its present title. In 1857 the American Medical College, organized in 1839, was merged into it, and in 1859 the Eclectic College of Medicine and Surgery, organized in 1856, merged into it. Classes were graduated in 1833 and in all subsequent years except 1839 to 1843 inclusive. It has a faculty of 15 professors and 10 lecturers and assistants, a total of 25. The course covers four years of thirty-two weeks each. The fees are $90 for each year. The Dean is Dr. Rolla L. Thomas, 792 East McMillan Street. Total registration for 1907-8 was 91; graduates 23. The next session begins Sept. 14, 1908, and ends April 28, 1909.

PULTE MEDICAL COLLEGE. Homeopathic. Mound and Seventh streets.—Organized in 1872. The first class graduated in 1873. The faculty numbers 32. The curriculum covers four years of seven months each. Fees: First year, $80; for the second and third, $75 each, and $100 for the fourth. The Dean is Dr. Charles E. Walton. Total enrolment for 1907-8 was 15; graduates, 1. The 37th session begins Sept. 30, 1908, and ends May 25, 1909.

Cleveland.

THE CLEVELAND COLLEGE OF PHYSICIANS AND SURGEONS. Central Avenue and East Fourteenth Street.—Organized in 1863 as Charity Hospital Medical College, became the Medical Departemnt of Wooster University in 1869 and the Medical Department of the Ohio Wesleyan University in 1896, when it assumed its present title. Classes were graduated in 1865 and in all subsequent years except 1881. The faculty is composed of 32 professors, 28 lecturers, assistants, instructors, etc., 60 in all. The total annual fees are $130. The curriculum covers four years of eight months each. The Dean is Dr. R. E. Skeel, 314 The Osborn. Total registration for 1907-8 was 90; graduates, 20. The next session begins Oct. 1, 1908, and ends May 20, 1909.

CLEVELAND HOMEOPATHIC MEDICAL COLLEGE. Prospect Avenue and Huron Road.—Organized in 1849 as the Western College of Homeopathic Medicine. The first class graduated in 1853. In 1857 it became the Western Homeopathic College and in 1870 it became the Homeopathic Hospital College when the Homeopathic Medical College for Women, organized in 1868, merged into it. In 1894 it became the Cleveland University of Medicine and Surgery, which in 1898 merged with the Cleveland Medical College, organized in 1890, taking the present title. The faculty includes 32 professors and 25 adjuncts, lecturers, etc., 57 in all. The course embraces four years of thirty weeks each. Fees, $125 per year. The Dean is Dr. George H. Quay. Total number of students registered 1907-8 was 43; graduates, 10. The next session begins Sept. 23, 1908, and ends May 14, 1909.

WESTERN RESERVE UNIVERSITY, MEDICAL DEPARTMENT. St. Clair Avenue and E. Ninth Street.—Organized in 1843 as the Cleveland Medical College. Classes were graduated in 1845 and in all subsequent years excepting 1862 and 1863. It assumed the present title in 1881. The faculty includes 24 professors and 70 lecturers, assistants, etc., a total of 94. The curriculum embraces four years of eight and one-half months each. Three years of college work are required for admission to first year of medical course. The total fees are $125 for each year. The Dean is Dr. B. L. Millikin, 1110 Euclid Avenue. The total registration for 1907-8 was 104; graduates, 30. The 66th session begins Oct. 1, 1908, and ends June 17, 1909.

Columbus.

STARLING-OHIO MEDICAL COLLEGE. Buttles Avenue and Park Street. Organized in 1907 by the union of Starling Medical College (organized 1834) with the Ohio Medical University (organized 1890). The faculty consists of 32 professors and 39 lecturers, demonstrators, etc., a total of 71. The course covers four years of eight months each. Fees, $100 per year; matriculation fee, $5; graduation fee $10. The Dean is Dr. George M. Waters. The total registration for 1907-8 was 209; graduates, 30. The next session begins Sept. 23, 1908, and ends May 18, 1909.

Toledo.

TOLEDO MEDICAL COLLEGE. Cherry and Page Streets.—Organized in 1883. The first class graduated in 1883. The curriculum embraces four years of eight months each. The fees are $75 for each year, with a matriculation fee of $5, payable once. The Dean is Dr. James Donnelly. The total registration for 1907-8 was 29; graduates, 3. The next session begins Oct. 1, 1908, and ends June 1, 1909.

OKLAHOMA.

Oklahoma, population 1,109,435, has two medical schools, the School of Medicine of the University of Oklahoma, which is located at Norman, a city of 3,040 inhabitants, and the College of Medicine of Epworth University, located at Oklahoma City, which has a population of 20,990.

Norman.

SCHOOL OF MEDICINE, UNIVERSITY OF OKLAHOMA.—Organized in 1903. Gives only the first two years of the medical course and does not grant degrees. The session extends over a period of nine months. The faculty numbers 12. Two courses are offered, one covering two years, at the completion of which a certificate is given; the other a combined course of four years, leading to the degree of B.S. Students are encouraged to take the latter course. The Acting Dean

is Dr. C. S. Bobo. The total registration for 1907-8 was 8. The sixth session begins Sept. 15, 1908, and ends June 10, 1909.

Oklahoma City.

COLLEGE OF MEDICINE OF EPWORTH UNIVERSITY.—Organized in 1904. The first class graduated in 1907. The faculty numbers 39. The course of study covers four years of seven and a half months each. The total fees are $100 each year. The Dean is Dr. A. K. West. The registration for 1907-8 was 21; graduates, 2. The fifth session begins Oct. 2, 1908, and ends May 10, 1909.

OREGON.

Oregon, population 474,738, has two medical colleges: The Medical Department of Willamette University, located in Salem, a city of 7,287 people, and the University of Oregon Medical Department, in Portland, a city of 109,884 population.

Portland.

UNIVERSITY OF OREGON, MEDICAL DEPARTMENT. Lovejoy and Twenty-third Streets.—Organized in 1887. The first class graduated in 1888. It has a faculty of 14 professors and 25 lecturers, assistants, etc., a total of 39. The course is four years of seven and one-half months each. Fees: First year, $142.50; second, $137.50; third, $107.50, and for the fourth, $57.50. The Dean is Dr. Simeon E. Joseph. The total registration for 1907-8 was 88; graduates, 20. The 22d session begins Sept. 14, 1908, and ends May 2, 1909.

Salem.

MEDICAL DEPARTMENT WILLAMETTE UNIVERSITY.—Organized in 1865 at Salem. Classes were graduated in 1867 and in all subsequent years except 1896. It moved to Portland in 1878, but returned to Salem in 1895. The Dean is Dr. W. H. Byrd. The total registration for 1907-8 was 35; graduates, 10. The next session begins Oct. 5, 1908, and ends May 15, 1909.

PENNSYLVANIA.

Pennsylvania, population 6,928,515, has seven medical colleges. Of these Philadelphia, having a population of 1,441,735, contains six, as follows: University of Pennsylvania, Department of Medicine, Jefferson Medical College, Hahnemann Medical College, Woman's Medical College of Pennsylvania, Medico-Chirurgical College of Philadelphia and Temple College Department of Medicine. The other school, the Western Pennsylvania Medical College, is situated in Pittsburg, a city of 375,082 people.

Philadelphia.

UNIVERSITY OF PENNSYLVANIA, DEPARTMENT OF MEDICINE. Thirty-sixth Street and Hamilton Walk.—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except 1772-79 inclusive. The original title was the Department of Medicine, College of Philadelphia, which was changed to the present title in 1791. It granted the first medical diploma issued in America. The faculty is made up of 27 professors, 2 associate professors, 4 adjunct professors, 7 assistant professors, 112 demonstrators, lecturers, associates, instructors, etc., a total of 152. The requirements for admission will be increased, beginning with the session of 1908-9, to the equivalent of one year's work in a college of arts. The course embraces study of four years of nine months each. The total fees for each year are $200, with a matriculation fee of $5 for the first year. The Dean is Dr. Charles H. Frazier. Total registration for 1907-8 was 604; graduates, 142. The next session begins Sept. 25, 1908, and ends June 16, 1909.

JEFFERSON MEDICAL COLLEGE. Tenth and Walnut streets.—Organized 1825 as the Medical Department of Jefferson College, Cannonsburg. The first class graduated in 1826. The present title was assumed in 1838. It has a faculty of 29 professors and 106 lecturers, demonstrators, etc., a total of 135. The course of study covers graded work of four years of eight months each. An optional fifth year is offered. The tuition is $180 a year, with a matriculation fee of $5, paid but once. The Dean is Dr. James W. Holland. The total registration for 1907-8 was 693; graduates, 126. The 84th session begins Sept. 24, 1908, and ends June 8, 1909.

MEDICO-CHIRURGICAL COLLEGE OF PHILADELPHIA. Cherry Street between Seventeenth and Eighteenth Streets.—Organized in 1881. The first class graduated in 1882. The faculty is composed of 31 professors and 64 lecturers, assistants, etc., a total of 95. The work embraces four years of eight months each. An optional preliminary year devoted to physics, chemistry and biology is offered. Fees, $150 per year; matriculation, $5, payable once. The Dean is Dr. Seneca Egbert. The total registration for 1907-8 was 419; graduates, 66. The 28th session begins Sept. 23, 1908, and ends June 5, 1909.

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA. Twenty-first and N. College Ave.—Organized in 1850. Classes were graduated in 1851 and in all subsequent years except 1861 and 1862. It has a faculty of 10 professors and 40 assistants, lecturers, etc., in all 50. The curriculum covers four years of eight months each. Fees: $140 each year. The Dean is Dr. Clara Marshall. The total registration for 1907-8 was 138; graduates, 32. The 59th session begins Sept. 23, 1908, and ends May 26, 1909.

HAHNEMANN MEDICAL COLLEGE AND HOSPITAL.—Organized in 1848 as the Homeopathic Medical College of Pennsylvania. In 1869 it united with the Hahnemann Medical College of Philadelphia, taking the present title. The first class graduated in 1849. It has a faculty of 28 professors and 45 lecturers, instructors, etc., in all 73. The work covers four years of eight months each. Fees: For each year, $150; matriculation, $5. The Dean is Dr. Herbert L. Northrop. The total registration for 1907-8 was 168; graduates, 37. The sixty-first session begins Sept. 21, 1908, and ends June 2, 1909.

THE TEMPLE COLLEGE, DEPARTMENT OF MEDICINE. Eighteenth and Buttonwood Streets.—Organized in 1901. The first class graduated in 1904. The faculty numbers 64. It gives a four-year day course and a five-year evening and day course. Three years of evening work will be required to cover the work of the two first years of the day course. All junior and senior work must be done in day classes. The fees are $150 per year. The Dean is Dr. I. Newton Snively. The total registration for 1907-8 was 134; graduates, 8. The eighth session begins Sept. 14, 1908, and ends June 15, 1909.

Pittsburg.

WESTERN PENNSYLVANIA MEDICAL COLLEGE. Brereton Avenue and Thirtieth Street.—Organized in 1886. The first class graduated in 1887. The faculty is composed of 40 professors and 80 associates, assistants, etc., 120 in all. The course of study embraces four years of nine months each. The total fees are $150 for each year. The Dean is Dr. J. C. Lange. The total registration for 1907-8 was 362; graduates, 57. The Twenty-fifth session begins Oct. 1, 1908, and ends June 15, 1909.

PHILIPPINE ISLANDS.

Manila.

UNIVERSITY OF ST. THOMAS, MEDICAL DEPARTMENT.—The University was founded by a papal decree in 1587, and the medical school was added in 1771. The faculty consists of 19 professors. The course extends over a period of six years of nine months each. The first year is a preparatory one, devoted to the teaching of physics, chemistry and biology. The degree of licenciado is conferred at the conclusion of the fifth year, and the degree of doctorado at the end of the sixth year, during which only special work is done. This last year is optional, the degree of licenciado entitling the holder to all the rights and privileges of the medical practitioner. The degree is equivalent to the English M.B. The Rector of the university is Dr. Fr. Raymundo Vetasquez; the Secretary of the Medical Department is Lic. Blas C. Alcuaz.

PHILIPPINE MEDICAL COLLEGE.—Organized in 1907 under the support of the Philippine Commission. The requirements for admission conform to the standards in the United States and Great Britain. The Secretary is Dr. Harry T. Marshall.

SOUTH CAROLINA.

South Carolina, population 1,453,318, has one medical college, situated in Charleston, a city of 56,317 people.

Charleston.

THE MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA.—Founded in 1823 as the Medical College of South Carolina. In 1832 it was chartered with the present title. Classes were graduated in 1825 and in all subsequent years except 1861 to 1865 inclusive. It has a faculty of 10 professors and 18 lecturers, instructors, etc., a total of 28. The course covers four years of seven months each. The total fees for each of the first two years are $100, and $75 each for the last two. The Dean is Dr. Allard Memminger. Total enrolment for 1907-8 was 153; graduates, 17. The eighty-sixth session begins Oct. 1, 1908, and ends April 10, 1909.

SOUTH DAKOTA.

South Dakota, population 465,908, has one medical college, the University of South Dakota, College of Medicine, located at Vermilion, a city of 2,183 people.

Vermilion.

UNIVERSITY OF SOUTH DAKOTA, COLLEGE OF MEDICINE.—Organized in 1907. Offers only the first two years of the medical course. Two years of work in a college of liberal arts is required for admission. The faculty numbers 7. The Dean is Christian P. Lommen, B. S. The total registration for 1907-8 was 3. The second session begins Sept. 14, 1908, and ends June 10, 1909.

TENNESSEE.

Tennessee, population 2,172,476, has eleven medical colleges. Of these Vanderbilt University Medical Department, the Medical Department of the University of Nashville, University of Tennessee Medical Department and Meharry Medical College are situated in Nashville, a city with a population of 84,703. Knoxville, population 36,051, contains two colleges, Tennessee Medical College and Knoxville Medical College. Chattanooga Medical College is situated in Chattanooga, a city of 34,297 people. Memphis Hospital Medical College, the College of Physicians and Surgeons and the University of West Tennessee are located in Memphis, population 125,235. The other school, the Medical Department of the University of the South, is located at Sewanee, a town of 500 people.

Chattanooga.

CHATTANOOGA MEDICAL COLLEGE.—McCallie and Baldwin Streets. Organized in 1889. The first class graduated in 1890. It is the Medical Department of Grant University. The faculty consists of 11 professors and 12 instructors, demonstrators, etc., total 23. The course covers four years of seven months each. The total fees approximate $55 each session. The Dean is Dr. J. R. Rathmell. The total registration for 1907-8 was 262; graduates, 25. The twentieth session begins Sept. 23, 1908, and ends April 26, 1909.

Knoxville.

TENNESSEE MEDICAL COLLEGE. Cleveland Street and Dameron Avenue.—Organized in 1889. The first class graduated in 1890. It has a faculty of 18 professors and 6 assistants, a total of 24. The curriculum covers four years of seven months each. Fees: First and second years, $50; third and fourth years, $60; matriculation

fee, $5; graduation fee, $25. The Registrar is Dr. E R. Zamp. The total registration for 1907-8 was 83; graduates, 17. The twentieth session begins Oct. 1, 1908, and ends May 1, 1909.

KNOXVILLE MEDICAL COLLEGE. Colored. Clinton and McGhee Streets. Organized in 1900. Classes were graduated in 1900 and in all subsequent years except 1906 and 1907. The Secretary is Dr. H. M. Green, Famous Building. There were 23 students and 4 graduates for the session of 1907-8.

Memphis.

COLLEGE OF PHYSICIANS AND SURGEONS. Opposite City Hospital. Organized in 1906. The first class graduated in 1907. It has a faculty of 52. The Memphis City Hospital furnishes clinical material. Access will also be had to St. Joseph's, Presbyterian and Lucy Brinkley hospitals. The course covers four years of seven months each. The Dean is Dr. Heber Jones. The total registration for 1907-8 was 69; graduates, 15. The third session begins Oct. 1, 1908, and ends May 1, 1909.

MEMPHIS HOSPITAL MEDICAL COLLEGE. Marshall Avenue and Myrtle Street.—Organized in 1880. The first class graduated in 1881. It has a faculty of 11 professors and 21 lecturers, instructors, etc., a total of 32. The course covers four years of seven months each. The total fees for the first three years are $75; for the fourth $100. The Dean is Dr. W. B. Rogers. Total registration for 1907-8 was 386; graduates, 83. The twenty-ninth annual session will begin Oct. 1, 1908, and close April 30, 1909.

MEDICAL DEPARTMENT OF THE UNIVERSITY OF WEST TENNESSEE. Colored. Orleans Street.—Organized in 1900. It has a faculty of 20. The course is four years of seven months each. The fees are $40 per year; graduation, $10 extra. The Dean is Dr. M. V. Lynk. Registration for 1907-8 was 35; graduates, 9. The next session begins Sept. 14, 1908, and ends April 14, 1909.

Nashville.

VANDERBILT UNIVERSITY, MEDICAL DEPARTMENT. Elm Street and Fifth Avenue.—This school was founded in 1874. The first class graduated in 1875. The present faculty of 39 consists of 19 professors and 20 lecturers. The course covers four years of seven and a half months each. The total fees are $125 each year. The Dean is Dr. William L. Dudley. The total registration for 1907-8 was 207; graduates, 40. The thirty-fifth session begins Sept. 16, 1908, and ends May 1, 1909.

UNIVERSITY OF NASHVILLE, MEDICAL DEPARTMENT. Second Avenue and Elm Street.—Organized in 1850. The first class graduated in 1852. It has a faculty of 10 professors and 20 lecturers, assistants, etc., in all 30. The course of study covers four years of seven and a half months each. The tuition for each of the four years is $75. The Dean is Dr. William G. Ewing. The total registration for 1907-8 was 302; graduates, 67. The fifty-ninth session begins Sept. 15, 1908, and ends April 30, 1909.

UNIVERSITY OF TENNESSEE, DEPARTMENT OF MEDICINE.—Organized in 1876 as the Nashville Medical College. In 1880 it became known by its present title. The first class graduated in 1877. The faculty is composed of 12 professors and 14 lecturers, assistants, etc., 26 in all. The course covers four years of seven and a half months each. The total fees for each of the first three years are $100 and $125 for the fourth year. The Dean is Dr. Hilliard Wood. The total registration for 1907-8 was 137; graduates, 40. The thirty-second session begins Sept. 15, 1908, and ends May 1, 1909.

MEHARRY MEDICAL COLLEGE. Colored. Maple and Chestnut Streets.—This school was organized in 1876 and is the Medical Department of Walden University. The faculty is made up of 12 professors and 12 instructors, demonstrators, etc., 24 in all. The work embraces four years of seven months each. The total fees are for the first year, $52; second and third years, $55 each, and $60 for the fourth year. The Dean is Dr. G. W. Hubbard. Total registration for 1907-8 was 285; graduates, 78. The thirty-third session begins Sept. 9, 1908, and ends April 6, 1909.

Sewanee.

MEDICAL DEPARTMENT OF THE UNIVERSITY OF THE SOUTH.—This school was organized in 1892 and has a faculty of 21 members. The curriculum covers four years of seven months each. The Dean is Dr. J. S. Cain. Total registration for 1907 was 99; graduates, 31. The seventeenth session begins April 1, 1909, and ends Oct. 31, 1909.

TEXAS.

Texas, population 3,536,618, has five medical colleges. The University of Texas Department of Medicine is located at Galveston, a city of 34,355 inhabitants. The Medical Department of Fort Worth University is at Fort Worth, population 27,096. The Baylor University College of Medicine, the Medical Department of Southwestern University and the College of Physicians are situated in Dallas, population 52,793.

Dallas.

BAYLOR UNIVERSITY COLLEGE OF MEDICINE. 435-37 South Ervay Street.—Organized in 1900 as the University of Dallas, Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University at Waco. It acquired the charter of Dallas Medical College in 1904. The first class graduated in 1901. The faculty numbers —. The course covers four years of seven months each. The fees are $75 for each of the four years, with a matriculation fee of $5, paid once, and a graduation fee of $25. The Dean is Dr. E. H. Cary. Total registration for 1907-8 was 62; graduates, 11. The ninth session begins Oct. 1, 1908, and ends May 1, 1909.

SOUTHWESTERN UNIVERSITY MEDICAL COLLEGE.—Organized in 1903. The first class graduated in 1904. It has a faculty of 15 professors and 13 instructors, total 28. The course of instruction covers four years. The fees are: Matriculation, $5, paid once; annual tuition, $75; graduation, $25. The Dean is Dr. John O. McReynolds. Total registration for 1907-8 was 63; graduates, 9. The sixth session begins Oct. 1, 1908, and ends April 30, 1909.

COLLEGE OF PHYSICIANS AND SURGEONS. 108-110 North Ervay Street.—Organized in 1903 as the Bell Medical College. Name changed to the above in 1906. The first class graduated in 1904. The Dean is Dr. Arthur C. Bell. *The Texas State Board of Medical Examiners reports that this college is not in good standing.*

Fort Worth.

MEDICAL DEPARTMENT OF FORT WORTH UNIVERSITY. Calhoun and Fifth Streets.—Organized in 1894. The first class graduated in 1895. It has a faculty of 14 professors and 20 lecturers, assistants etc., in all 34. The course covers four years of seven months each. The total fees for each of the first three years are $75 and $100 for the fourth year. The Dean is Dr. W. R. Thompson. The total registration for 1907-8 was 108; graduates, 9. The fifteenth session begins Oct. 6, 1908, and ends May 6, 1909.

Galveston.

UNIVERSITY OF TEXAS, DEPARTMENT OF MEDICINE. Avenue B and Ninth Street.—Organized in 1891. The first class graduated in 1892. It has a faculty of 10 professors and 19 lecturers. The curriculum embraces four years of eight months each. Fees: First year, $50; second and third, each $20, and $5 for the fourth. The Dean is Dr. William S. Carter. Total registration for 1907-8 was 198; graduates, 25. The eighteenth session begins Oct. 1, 1908, and ends May 29, 1909.

UTAH.

Utah, population 316,331, has one medical college, the Medical Department of the University of Utah, situated at Salt Lake City, which has 61,202 people.

Salt Lake City.

UNIVERSITY OF UTAH, DEPARTMENT OF MEDICINE.—Organized in 1906. Gives only the first two years of the medical course. Each course covers thirty-six weeks. The medical faculty consists of 7 professors and 16 lecturers and assistants, a total of 23. Fees: First year, total $62.50; second year, $68.75. The Dean is Byron Cummings, A.M. The third session begins Sept. 14, 1908, and ends June 2, 1909.

VERMONT.

Vermont, population 350,373, has one medical school, located at Burlington, a town of 21,070 people.

Burlington.

UNIVERSITY OF VERMONT COLLEGE OF MEDICINE. Pearl Street, College Park.—Organized with complete course in 1822. Classes graduated in 1823 to 1836, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. The faculty consists of 31 professors and 15 assistants, instructors, etc., in all 46. The course of study covers four years of seven months each. The total fees for each of the first three years are $115 and $140 for the fourth year. The Dean is Dr. H. C. Tinkham; Secretary, H. L. White, A.M. Total registration for 1907-8 was 142; graduates, 33. The next session begins Nov. 11, 1908, and ends June 24, 1909.

VIRGINIA.

Virginia, population 1,973,104, has three medical colleges, one the Medical Department of the University of Virginia, situated in Charlottesville, population 6,449, and two, the Medical College of Virginia and the University College of Medicine, in Richmond, population 87,246.

Charlottesville.

UNIVERSITY OF VIRGINIA, DEPARTMENT OF MEDICINE.—Organized in 1827. Classes were graduated in 1828 and in all subsequent years, except 1865. It has a faculty of 15 professors and 14 lecturers, instructors, assistants, etc., a total of 29. The requirements for admission are the completion of a three years' high school course or its equivalent, and a year of chemistry, physics, and biology. Fees: First year, $150; second year, $140; third year, $120; fourth year, $100. The Dean is Dr. R. H. Whitehead. The total registration for 1907-8 was 106; graduates, 22. The next session begins Sept. 10, 1908, and ends June 16, 1909.

Richmond.

MEDICAL COLLEGE OF VIRGINIA. Marshall and College Streets.—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. Classes were graduated in 1840 and in all subsequent years. It has a faculty of 16 professors and 36 lecturers, instructors, etc., a total of 52. The requirement for admission is a full four-year high school education. The course embraces four years of eight months each. Fees: $100 each year; graduation fee, $30. The Dean is Dr. Christopher Tompkins. Total registration for 1907-8 was 215; graduates, 38. The seventy-first session begins Sept. 15, 1908, and ends May 19, 1909.

UNIVERSITY COLLEGE OF MEDICINE. Eleventh and Clay Streets.—Organized in 1893. The first class graduated in 1894. It has a faculty of 19 professors, 43 lecturers, assistants, etc., a total of 62. The curriculum covers four years of eight months each. The total fees are $100 for each year. The President is Dr. Stuart McGuire; the Dean is Dr. Paulus A. Irving. The total registration for 1907-8 was 158; graduates, 43. The sixteenth session begins Sept. 15, 1908, and ends May 18, 1909.

WEST VIRGINIA.

West Virginia, population 1,076,406, has one medical college, College of Medicine of the West Virginia University, located at Morgantown, a city of 3,900 inhabitants.

Morgantown.

WEST VIRGINIA UNIVERSITY COLLEGE OF MEDICINE.—Organized in 1902. Gives only the first two years of the medical course. Each college term extends over nine months. The faculty consists of 6 professors and 5 assistants, 11 in all. Tuition to students residing in the state, $25; for others, $50 per year. The Dean is Dr. J. N. Simpson. Total registration for 1907-8 was 43. The seventh session begins Sept. 21, 1908, and ends June 15, 1909.

WISCONSIN.

Wisconsin, population 2,260,930, has three medical colleges, the Medical Department of the University of Wisconsin, which teaches the first two years of the medical course, and is located at Madison, a city having a population of 25,128, and the Milwaukee Medical College and Wisconsin College of Physicians and Surgeons, situated in Milwaukee, a city of 317,903 people.

Madison.

UNIVERSITY OF WISCONSIN COLLEGE OF MEDICINE.—Organized in 1907. Gives only the first two years of the medical course. For matriculation a candidate must have had in addition to a four-year high school course at least two years in a college of arts and science or an equivalent training. Two years of Latin, a reading knowledge of French and German, and at least a year's work in physics, chemistry and biology are specifically required. It has a faculty of 23 professors and 25 lecturers, instructors, etc., a total of 48. The Dean is Dr. Charles R. Bardeen. The registration for 1907-8 was 26. The second session begins Oct. 1, 1908, and ends June 18, 1909.

Milwaukee.

MILWAUKEE MEDICAL COLLEGE. Medical Department of Marquette University. Ninth and Wells Streets.—Organized in 1894. The first class graduated in 1895. It became the Medical Department of Marquette University in 1907. It has a faculty of 31 professors and 22 lecturers, instructors, etc., a total of 53. The course covers four years of eight months each. The total fees are $130 each for the first three years and $145 for the fourth year. The Dean is Dr. Warren B. Hill. The total registration for 1907-8 was 147; graduates, 43. The fifteenth session begins Oct. 1, 1908, and ends June 1, 1909.

WISCONSIN COLLEGE OF PHYSICIANS AND SURGEONS. Fourth Street and Reservoir Avenue.—Organized in 1893. The first class graduated in 1894. It has a faculty of 20 professors and 29 lecturers, instructors, etc., a total of 49. The curriculum includes four years of eight months each. Fees: Matriculation, paid once, $5; general ticket, $120. The Secretary is Dr. J. C. Phillips. The total registration for 1907-8 was 58; graduates, 9. The seventeenth session begins Sept. 29, 1908, and ends May 27, 1909.

THE AMERICAN MEDICAL ASSOCIATION STANDARDS OF MEDICAL EDUCATION.

The Ideal Standard.

The ideal standard to be aimed at from the present viewpoint should consist of: (A) Preliminary education sufficient to enable the candidate to enter our recognized universities, such qualifications to be passed on by the state authorities. (B) A course of at least one year to be devoted to physics, chemistry and biology, such arrangements to be made that this year could be taken either in a college of liberal arts or in the medical school. (C) Four years in pure medical work, the first two of which should be spent largely in laboratories of anatomy, physiology, pathology, pharmacology, etc., and the last two in close contact with patients in dispensaries and hospitals in the study of medicine, surgery, obstetrics and the specialties. (D) A sixth year as an interne in a hospital or dispensary should then complete the medical course.

Under such a scheme the majority of men would begin the study of medicine between 18 and 19 years of age, and would graduate from the hospital interneship at from 24 to 25. A college education is recognized as a desirable preparation for a limited number of men, but it is thought that it is not and never will be desirable to make such college education a requirement to the study of medicine, as it would make the age of graduation from 27 to 28 years, which is regarded as too old a period at which the young medical man should begin his life's work.

Standard Now Recommended.

The minimum standard now recommended prerequisite to the practice of medicine is as follows:

1. (a) The preliminary requirement to be a four-year high school education or its equivalent, such as would admit the student to one of our recognized universities; (b) and in addition (as soon as conditions warrant), a year of not less than nine months, devoted to the study of physics, chemistry, biology and one modern language, preferably German, to be taken either in a college of liberal arts or in a recognized medical college having a preliminary year devoted exclusively to the subjects mentioned.

2. There should be a requirement that previous to matriculation in a medical college every student must secure from the State Examining Board a "medical student's entrance certificate," which would be issued either on presentation of credentials of preliminary education not less than that laid down by requirement one, or on passing an examination given by the Board and which will satisfy the Board that the student has an equivalent education.

3. A medical training in a medical college, having four years of not less than thirty weeks each year, exclusive of holidays, of thirty hours per week of actual work.

4. Graduation from an approved medical college required to entitle the candidate to an examination before a state examining board.

5. The passing of a satisfactory examination before a state examining board.

A Medical College in Good Standing.

Below is a schedule of the minimum requirements, laboratory equipment and clinical facilities which should obtain in a medical college before it can be considered as giving a satisfactory course or be determined as a medical college in good standing:

I. REQUIREMENTS.

1. Matriculation.—For matriculation the medical college should require of each student:

(1) A certificate of good moral character, signed by two reputable physicians of the state in which the applicant resides; and,

(2) As evidence of satisfactory preliminary education, a medical student's matriculation certificate, issued by the state board of medical examiners or its authorized agent, this certificate to be issued on (A) acceptable credentials, or (B) on successfully passing a preliminary examination.

A. Acceptable Credentials.—(a) A degree from an accredited university or college of arts or science; or,

(b) A diploma from an accredited four-year high school, normal school or academy which required for admission eight years of study in the primary and intermediate grades and which furnished a preliminary education of at least 15 units (30 points or credits, or 75 counts), as given in the following outline:

STATEMENT OF ACADEMIC OR SECONDARY WORK FOR ADMISSION TO MEDICAL COLLEGE BY CREDENTIALS OR EXAMINATION.

REQUIRED BRANCHES.

	Units.	Points.	Counts.
Rhetoric and composition	1	2	5
History of English and American literature	1	2	5
Algebra, through quadratics	1	2	5
Geometry, plane	1	2	5
Latin, grammar and 4 books of Cæsar or equivalent	2	4	10
U. S. History and Civics	1	2	5
Physics, with laboratory work	1	2	5
Total	8	16	40

ELECTIVE BRANCHES.

Seven units, 14 points or credits, or 35 counts to be selected from the following subjects. Not more than 2 units, 4 points or credits or 10 counts from any one group:

	Units.	Points.	Counts.
Group 1:			
English Classics (College Entrance Examining Board list)	2	4	10
Group 2:			
Geometry, solid	.5	1	2.5
Trigonometry	.5	1	2.5
Group 3:			
Latin, Cicero (7 orations)	1	2	5
Latin, Virgil (6 books)	1	2	5
Group 4:			
German, grammar with 2 years' certified work	2	4	10
French, grammar with 2 years' certified work	2	4	10
Spanish, grammar with 2 years' certified work	2	4	10
Group 5:			
History, Greece and Rome	1	2	5
History, medieval and modern	1	2	5
History, England, half year's work	.5	1	2.5
History, France, half year's work	.5	1	2.5
Group 6:			
Biology, with laboratory work	1	2	5
Botany, with laboratory work	.5	1	2.5
Zoology, with laboratory work	.5	1	2.5
Physiology and Hygiene, with laboratory work	1	2	5
Group 7:			
Chemistry, with laboratory	1	2	5
Total	18	36	90

A *unit* is the credit value of 36 weeks' work of 5 recitation periods per week, each recitation period to be of not less than 45 minutes.

A *point* is the credit value of 18 weeks' work of 5 recitation periods per week, each recitation period to be of not less than 45 minutes.

A *count* is the credit value of one recitation period per week of not less than 45 minutes through 36 weeks.

It is urged that within a reasonable time the minimum requirements as given in paragraph (b) will be enlarged to include an additional year in university physics, chemistry, biology and a reading knowledge of at least one modern language, preferably German or French.

B. Preliminary Examination.—The preliminary examination should be taken before the board of medical examiners or its authorized agent, and should represent the work of 15 units (30 points or credits or 75 counts) in accordance with the above outline. Under no circumstances must this examination be given by any one connected with the medical college.

Later, when the requirement is considered reasonable, university courses in physics, chemistry, biology and modern languages should be required in this examination.

2. Medical Education.—The medical college should give a strictly graded course covering four years of not less than thirty weeks each year, exclusive of holidays. Each year should cover not less than thirty hours per week of scheduled classroom work in lectures, recitations, laboratory and clinical work. At least forty-two calendar months should elapse between the dates of matriculation and graduation. The complete course should approximate 3,600 hours and include:

(a) Two years of study, consisting largely of laboratory work in anatomy, histology, embryology, physiology, chemistry, pharmacology, physiologic chemistry, bacteriology and pathology.

(b) Two years of clinical work largely in hospitals and dispensaries, with thorough courses in internal medicine (including physical diagnosis, pediatrics, nervous and mental diseases), surgery (including surgical anatomy and operative surgery on the cadaver), obstetrics, gynecology, materia medica, pharmacology, laryngology, rhinology, ophthalmology, otology, dermatology, hygiene and medical jurisprudence. There should also be a laboratory course in clinical microscopy, including hematology, and the hospital courses should be accompanied by work in properly equipped clinical laboratories.

3. Advanced Standing.—(a) Advanced standing may be granted to the extent of three years of work taken at other recognized colleges.

(b) In giving advanced standing the college should not discriminate against its own full-course students. It is meant by this that students should not be given full standing when they come from colleges not giving equivalent courses.

(c) Before granting any advanced standing the dean or secretary of the school to which the student seeks admission should obtain from the corresponding officer of the school from which the student comes a full statement of his credentials, so far as preliminary and medical education is concerned, together with the standing of the student in each course he has taken.

4. Graduation.—The medical college should require of each student before graduation:

(a) Compliance with the above given requirements of preliminary and medical education.

(b) An attendance of at least 80 per cent. on each course of instruction above mentioned.

(c) The passing of a final examination in each course of instruction above mentioned with a percentage of at least 75.

(d) The individual dissection of at least one lateral half of a human cadaver.

(e) The individual attendance on and management of at least two maternity cases.

(f) The work of at least the fourth or senior year must be taken in the medical college granting the degree.

II. EQUIPMENT AND FACILITIES.

1. Buildings.—The medical college buildings should be well lighted, sanitary and commodious, with ample space for laboratories, amphitheaters, examining, lecture, recitation and special research rooms, as well as storage rooms and a suitable place for such animals as are used in experimental work.

2. Laboratories.—There should be well-equipped laboratories for practical anatomy, histology, embryology, physiology, chemistry, physiolgic chemistry, pharmacology, bacteriology and pathology, and these laboratories should be officered by trained instructors paid to devote their entire time to the preparation of materials used in instruction and to teaching and research. By a well-equipped laboratory is understood a laboratory provided with all the microscopes and other apparatus necessary to enable each student to carry on the work of that department intelligently and successfully.

3. Hospitals, Dispensaries and Clinical Facilities.—(a) The main hospital and dispensary should be in close proximity to the college building, of easy access to the students, and should be under the control of the college at least so far as clinical material is concerned.

(b) The hospital material available for clinical purposes should be in proportion to a daily average of at least 200 patients to 100 students in the senior class.

(c) The dispensary material should be carefully classified and properly used.

4. Library, Museum, Charts, Etc.—(a) Library: The medical college should have a working medical library, including the more recent text and reference books, as well as ten or more of the chief medical periodicals. This library room should be easily accessible to the students, should be provided with suitable tables and chairs, and should have an attendant in charge.

(b) Museum: There should be a medical museum having its various anatomic, embryologic, pathologic and other specimens carefully prepared, labeled and indexed in order that any specimen may be easily found and employed for teaching purposes. The value of the pathologic collection could be greatly augmented by having slides showing the microscopic findings in each case carefully prepared, labeled, indexed and kept easily accessible. Clinical records of these cases should also be drawn up, indexed and filed for easy reference.

(c) Charts, Models, Stereopticons, Etc.—The medical college should have a supply of anatomic charts, embryologic models and other apparatus, such as a stereopticon or a reflectoscope, as well as microphotographic, Roentgen ray or other apparatus, which would be of service in the teaching of medicine.

III. CONDUCT OF THE COLLEGE.

1. The medical college should literally observe its published requirements for admission, tuition, time of attendance on the sessions and graduation, which it should definitely set forth, together with complete lists of its matriculates and annual graduates, in regular annual catalogues or announcements.

2. New medical colleges may be recognized on application if on examination they are found to comply with the above requirements.

THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES.

The requirements for admission to and graduation from colleges holding membership are as follows:

Preliminary Education: (*a*) A bachelor's degree from an approved college or university. (*b*) A diploma from an accredited high school, normal school or academy requiring for admission evidence of the completion of an eight-year course in primary and intermediate grades, and for graduation not less than four years of study embracing not less than two years (4 points) of Latin, two years (4 points) of mathematics, two years (4 points) of English, one year (2 points) of history, one year (2 points) of physics, and six years (12 points) of further credit in language, literature, history or science. (*c*) An examination in the following branches, totaling 30 points: A. Required (16 points): Mathematics (4 points), English (4 points), History (2 points), Latin (4 points), Physics (2 points).

B. Elective (14 points): English language and literature, 4 points; language, German, French, Spanish or Greek, in each not less than 2 points; solid geometry and trigonometry (½ year each), 2 points; biology (one year) or botany and zoology (½ year each), 2 points; chemistry (1 year), 2 points; physical geography and geology (½ year each), 1 point; physiology and hygiene (½ year each), 1 point; astronomy (½ year), 1 point; drawing (½ year), 1 point. One point in any subject in a high school or academic course demands not less than five periods per week of forty-five minutes each for eighteen weeks. (*d*) Certificates from reputable instructors recognized by any state board of medical examiners duly authorized by law or by the superintendents of public instruction in states having no board of examiners, may be accepted in lieu of any part of this examination. This examination must be conducted by or under the authority of the board of examiners or of the superintendent of public instruction of the city or state in which the college is located. In no case shall it be conducted by any person connected with the faculty, medical or otherwise, of the institution to which the student is seeking admission.

A student may be allowed to enter on his medical work conditioned in not more than six points, and these conditions must be removed by satisfactory examination before he is allowed to enter on the second year of his medical course.

Advanced Standing: Colleges in membership in this Association may honor the official credentials presented by students from other colleges having the standard requirements maintained by members of this Association, excepting for the fourth year of their course, but no member shall admit a student to advanced standing without first communicating with the college from which such student desires to withdraw, and receiving from the dean of such college a

(*Continued on page 590.*)

NAME AND LOCATION OF COLLEGE.	Population of city in which college is located. (Census Bureau estimate, 1906.)	Number of students registered, session of 1907-8		Graduates 1903.		Total number of teachers.	Weeks in college year.	Total students in all colleges in state, 1907-8.	Total graduates all colleges in state, 1908.
		Men.	Women	Men	Women				
ALABAMA								303	41
Birmingham Medical College, Birmingham.—R	45,869	134	.....	16	.....	**35**	**28**	.....	.....
Medical College of Alabama, Mobile.—R	42,903	169	.....	25	.....	**21**	**28**	.....	.....
ARKANSAS								264	34
Arkansas University, Little Rock.—R	39,959	175	2	19	0	28	28	.....	.....
College of Physicians and Surgeons, Little Rock.—R	39,959	86	1	15	0	**38**	28	.....	.....
CALIFORNIA								380	103
Cooper Med. Coll., San Francisco.—R	364,677	94	3	22	2	**59**	**35**	.....	.....
University of California, San Francisco.—R	364,677	31	5	15	**1**	**57**	**35**	.....	.....
Hahnemann Medical College, San Francisco.—H	364,677	26	7	7	2	32	32	.....	.....
College of P. and S., San Francisco.—R	364,677	65	5	13	3	45	32	.....	.....
Oakland Coll. of Med. and Surg., Oakland.—R	73,812	9	1	0	1	30	36	.....	.....
University of Southern California, Los Angeles.—R	102,479	80	9	25	1	72	33	.....	.....
College of P. and S., Los Angeles.—R	102,479	33	4	10	0	39	36	.....	.....
California Eclectic Medical College, Los Angeles.—E	102,479	8	.....	1	.....	27	32	.....	.....
COLORADO								177	39
Denver and Gross Coll. of Med., Denver.—R	151,920	75	4	20	2	71	32	.....	.....
Denver College of Physicians and Surgeons, Denver.—P	151,920	44	2	5	1	37	29	.....	.....
University of Colorado, School of Medicine, Boulder.—R	6,150	46	6	9	2	39	34	.....	.....
CONNECTICUT								136	29
Yale University Medical Department, New Haven.—R	121,227	136	.....	29	.....	58	36	.....	.....
DISTRICT OF COLUMBIA								485	96
George Washington University, Washington.—R	307,716	195	3	45	0	76	33	.....	.....
Georgetown University, Washington.—R	307,716	82	.....	27	.....	74	33	.....	.....
Howard University Medical Department, Washington.—R	307,716	196	9	22	2	38	33	.....	.....
GEORGIA								697	136
Atlanta College of P. and S., Atlanta.—R	104,984	234	.....	29	.....	49	28	.....	.....
Atlanta School of Medicine, Atlanta.—R	104,984	270	4	48	0	40	28	.....	.....
Georgia Coll. of Eclectic Med. and Surg., Atlanta.—E	104,984	71	.....	23	.....	14	23	.....	.....
International Medical Missionary College, Atlanta.—R	104,984	3	2	3	1	18	.....	.....	.....
University of Georgia Medical Department, Augusta.—R	43,125	113	.....	32	.....	28	28	.....	.....
ILLINOIS								2,715	581
American Medical Missionary College, Chicago.—R	2,049,185	26	16	1	3	25	36	.....	.....
Bennett Coll. of Eclectic Med. and Surg., Chicago.—E	2,049,185	135	15	24	4	52	32	.....	.....
College of Medicine and Surgery, Chicago.—Ph.M	2,049,185	16	12	.....	3	42	31	.....	.....
College of Physicians and Surgeons, Chicago.—R	2,049,185	434	29	139	11	149	33	.....	.....
Hahnemann Medical College, Chicago.—H	2,049,185	107	10	39	4	86	31	.....	.....
Hering Medical College, Chicago.—H	2,049,185	48	10	13	3	.....	31	.....	.....
Illinois Medical College, Chicago.—R	2,049,185	50	3	27	3	50	30	.....	.....
Jenner Medical College, Chicago.—R*	2,049,185	157	18	29	3	53	38	.....	.....
Northwestern University, Chicago.—R	2,049,185	533	.....	135	.....	233	32	.....	.....
Rush Medical College, Chicago.—R	2,049,185	549	37	67	3	248	34	.....	.....
National Medical University, Chicago.—P	2,049,185	111	12	.....	.....	.....	.....	.....	.....
Chicago College of Medicine and Surgery, Chicago.—R	2,049,185	308	17	63	7	70	30	.....	.....
Reliance Medical College, Chicago.—R	2,049,185	58	4	.....	.....	30	38	.....	.....
INDIANA								344	84
Eclectic Med. Coll. of Indiana, Indianapolis.—E	219,154	12	.....	5	.....	.....	28	.....	.....
Indiana Univ. Sch. of Med., Bloomington and Indianapolis.—R	219,154	302	6	73	1	175	36	.....	.....
Physio-Med. Coll. of Indiana, Indianapolis.—Ph.M	219,154	24	.....	5	.....	47	31	.....	.....
IOWA								525	115
Drake University College of Medicine, Des Moines.—R	78,323	66	9	18	0	44	36	.....	.....
Keokuk Medical College of Phys. and Surg., Keokuk.—R	14,597	109	6	35	~	28	32	.....	.....
Sioux City College of Medicine, Sioux City.—R	42,520	26	.....	9	.....	26	34	.....	.....
State University of Iowa, Homeo. Dept., Iowa City.—H	8,497	42	1	9	0	36	36	.....	.....
State University of Iowa, Medical Dept., Iowa City.—R	8,497	255	11	41	1	52	36	.....	.....
KANSAS								211	42
Kansas Medical College, Topeka.—R	41,886	66	3	13	0	38	31	.....	.....
School of Medicine, Univ. of Kansas, Kansas City.—R	77,912	96	5	17	1	90	34	.....	.....
Eclectic Medical University, Kansas City.—E	77,912	36	5	9	2	37	31	.....	.....
KENTUCKY								985	254
Kentucky School of Medicine, Louisville.—R	226,129	270	.....	44	.....	47	30	.....	.....
Louisville and Hospital Medical College, Louisville.—R	226,129	335	.....	102	.....	28	30	.....	.....
Louisville National Medical College, Louisville.—R	226,129	36	.....	6	.....	22	30	.....	.....
Southwestern Homeopathic Med. Coll., Louisville.—H	226,129	11	2	1	1	28	30	.....	.....
University of Louisville, Louisville.—R	226,129	331	.....	109	.....	62	29	.....	.....
LOUISIANA								559	110
Flint Medical College, New Orleans.—R	314,146	34	.....	8	.....	15	29	.....	.....
Tulane University, New Orleans.—R	314,146	535	.....	102	.....	69	30	.....	.....
MAINE								93	29
Medical School of Maine, Portland.—R	55,167	93	.....	29	.....	35	32	.....	.....
MARYLAND								1,338	344
Baltimore Medical College, Baltimore.—R	553,669	323	.....	82	.....	69	32	.....	.....
College of Phys. and Surg., Baltimore.—R	553,669	253	.....	68	.....	55	32	.....	.....
Johns Hopkins University, Baltimore.—R	553,669	262	19	67	1	103	32	.....	.....
Atlantic Medical College, Baltimore.—P	553,669	34	3	21	1	50	30	.....	.....
University of Maryland, Baltimore.—R	553,669	316	.....	73	.....	62	32	.....	.....
Woman's Medical College, Baltimore.—R	553,669	.....	28	.....	11	34	32	.....	.....
Maryland Medical College, Baltimore.—R	553,669	100	.....	20	.....	22	32	.....	.....
MASSACHUSETTS								933	171
Boston University School of Medicine, Boston.—H	602,278	74	28	12	7	61	32	.....	.....
College of Physicians and Surgeons, Boston.—R	602,278	162	.....	26	.....	45	32	.....	.....
Harvard University, Medical School, Boston.—R	602,278	298	.....	70	.....	166	36	.....	.....
Tufts Medical College, Boston.—R	602,278	336	35	51	5	101	32	.....	.....
MICHIGAN								**640**	123
Detroit College of Medicine, Detroit.—R	353,535	146	.....	30	.....	108	33	.....	.....
Detroit Homeopathic Medical College.—Detroit.—H	353,535	20	2	5	1	36	32	.....	.....
University of Michigan, Dept. of Medicine, Ann Arbor.—R	14,645	369	21	65	7	65	36	.....	.....
University of Michigan, Homeopathic Dept., Ann Arbor.—H	14,645	72	10	10	5	11	36	.....	.....
MINNESOTA								298	69
University of Minnesota, Homeo. Dept., Minneapolis.—H	273,825	6	0	3	0	75	34	.....	.....
University of Minnesota, Dept. of Med., Minneapolis.—R	273,825	158	8	31	1	114	34	.....	.....
Hamline University, Minneapolis.—R	273,725	121	5	34	.....	.....	.....	.....	.....
MISSISSIPPI								133	11
University of Mississippi, Vicksburg.—R	15,710	28	.....	.....	.....	**9**	34	.....	.....
Mississippi Medical College, Meridian.—R	20,503	103	2	11	0	16	28	.....	.....

* Night schools. † Figures for 1906-7. R, Regular; H, Homeopathic; E, Eclectic; Ph.M., Physio-Medical; P, Panpathic.

NAME AND LOCATION OF COLLEGE.	Population of city in which college is located. (Census Bureau estimate, 1906.)	Number of students registered, session of 1907-8		Graduates 1908.		Total number of teachers.	Weeks in college year.	Total students in all colleges in state, 1907-8.	Total graduates all colleges in state, 1908.
		Men.	Women	Men.	Women				
MISSOURI								1,448	383
University Medical College, Kansas City.—R	182,376	102		61		53	32		
Kansas City Hahnemann Med. Coll., Kansas City.—H	182,376	57	5	14	1	43	32		
Ensworth Med. Coll., St. Joseph.—R	115,004	91		25		34	31		
Barnes Medical College, St. Louis.—R	649,320	300	25	69	9	69	32		
St. Louis University, St. Louis.—R	649,320	241		68		105	31		
St. Louis College of Phys. and Surg., St. Louis.—R	649,320	164		49		39	29		
American Medical College, St. Louis.—E	649,320	41		8		17	29		
Hippocratean College of Medicine.—R*	649,320	28	6			30	38		
Homeopathic Med. Coll. of Missouri, St. Louis.—H	649,320	25	2	9	0	27	30		
Washington University, St. Louis.—R	649,320	206	2	50	0	92	32		
University of Missouri, Columbia.—R	7,800	57	8	7	1	28	34		
NEBRASKA								310	85
University of Nebraska, Omaha.—R	124,167	93	2	24	0	82	32		
Creighton Medical College, Omaha.—R	124,167	150	8	41	0	52	32		
Lincoln Medical College, Lincoln.—E	48,232	48	2	18	0	46	36		
Nebraska College of Medicine, Lincoln.—R	48,232	32	2	2	0	40	35		
NEW HAMPSHIRE								58	9
Dartmouth Medical College, Hanover.—R	1,684	58		9		22	39		
NEW YORK								2,170	464
Albany Medical College, Albany.—R	98,537	180		49		63	31		
College of Physicians and Surgeons, New York.—R	4,113,043	322		81		163	34		
Cornell University, New York.—R	4,113,043	293	24	57	1	181	33		
Eclectic Medical College, New York.—E	4,113,043	46	10	5	2	30	32		
Long Island College Hospital, New York.—R	4,113,043	337		89		99	30		
New York Homeo. Med. College, New York.—H	4,113,043	80		18		74	30		
New York Woman's Medical College, New York.—H	4,113,043		20		3	43	30		
University and Bellevue Medical College, New York.—R	4,113,043	503		88		128	32		
Fordham University, School of Medicine, New York.—R	4,113,043	30				65	32		
Syracuse University, Syracuse.—R	118,880	142	8	41	2	51	32		
University of Buffalo, Buffalo.—R	381,819	166	10	36	1	99	32		
NORTH CAROLINA								382	61
Leonard Medical School, Raleigh.—R	14,225	146		43		10	30		
University of North Carolina, Raleigh.—R	14,225	114		12		44	34		
North Carolina Medical College, Charlotte.—R	22,000	82		6		28	30		
Wake Forest School of Medicine, Wake Forest.—R	823	40				46	34		
NORTH DAKOTA								20	0
University of North Dakota, University (Grand Forks).—R	10,127	20	0			16	35		
OHIO								768	179
Western Reserve University, Cleveland.—R	460,327	104	0	30	0	94	34		
Cleveland Coll. of Phys. and Surg., Cleveland.—R	460,327	82	8	18	2	60	30		
Cleveland Homeopathic Med. Coll., Cleveland.—H	460,327	37	6	9	1	57	31		
Eclectic Medical Institute, Cincinnati.—E	345,230	91		23		25	30		
Medical College of Ohio, Cincinnati.—R	345,230	115	2	25	1	61	32		
Pulte Medical College, Cincinnati.—H	345,230	11	4	0	1	32	31		
Miami Medical College, Cincinnati.—R	345,230	68	2	15	1	61	32		
Starling-Ohio Medical College, Columbus.—R	145,414	204	5	28	2	71	32		
Toledo Medical College, Toledo.—R	159,980	26	3	3	0	46	34		
OKLAHOMA								29	2
University of Oklahoma, Norman.—R	3,040	8				12	35		
Epworth University Med. Dept., Oklahoma City.—R	20,000	20	1	2	0	39	29		
OREGON								123	30
University of Oregon, Portland.—R	109,884	82	6	16	4	39	30		
Willamette University, Salem.—R	7,287	34	1	9	1	18	30		
PENNSYLVANIA								2,518	410
Temple College of Medicine, Philadelphia.—R*	1,441,735	126	8	8	0	64	36		
University of Pennsylvania, Philadelphia.—R	1,441,735	604		118		157	35		
Hahnemann Medical College, Philadelphia.—H	1,441,735	168		37		73	33		
Jefferson Medical College, Philadelphia.—R	1,441,735	693		126		135	33		
Woman's Medical College, Philadelphia.—R	1,441,735		138		32	50	32		
Medico-Chirurgical College, Philadelphia.—R	1,441,735	419		66		95	32		
Western Pennsylvania Medical College, Pittsburg.—R	375,082	349	13	51	2	80	32		
SOUTH CAROLINA								153	17
Medical College of South Carolina, Charleston.—R	56,317	153		17		28	25		
SOUTH DAKOTA								3	0
University of South Dakota, College of Med., Vermilion.—R	2,183	3				9	34		
TENNESSEE								1,888	409
Tennessee Medical College, Knoxville.—R	36,051	80	3	15	2	24	28		
Knoxville Medical College, Knoxville.—R	36,051	19	4	4	0	11	28		
University of Nashville, Nashville.—R	84,703	302		67		30	30		
Vanderbilt University, Nashville.—R	84,703	207		40		39	30		
University of Tennessee, Nashvile.—R	84,703	137		40		26	30		
Meharry Medical College, Nashville.—R	84,703	274	11	75	3	24	28		
Memphis Hospital Medical College, Memphis.—R	125,235	386		83		32	28		
College of Physicians and Surgeons, Memphis.—R	125,235	69		15		52	28		
University of West Tennessee, Memphis.—R	125,235	33	2	9	0	20	28		
University of the South, Sewanee.—R	500	99		31		21	28		
Chattanooga Medical College, Chattanooga.—R	34,297	262		25		23	28		
TEXAS								572	81
Fort Worth University, Fort Worth.—R	27,096	104	4	7	2	34	28		
University of Texas, Galveston.—R	34,355	190	8	24	1	22	32		
Baylor University, Dallas.—R	52,793	59	3	11	0	36	28		
Physio-Med. Coll. of Texas, Dallas.—Ph.M	52,793	38		4					
Southwestern University Medical College, Dallas.—R	52,793	62	1	8	1	28	28		
College of Physicians and Surgeons, Dallas.—R†	52,793	103		23					
UTAH								28	0
University of Utah, Dept. of Med., Salt Lake City.—R	61,202	28	0			13	34		
VERMONT								142	33
University of Vermont, Burlington.—R	21,070	142		33		56	30		
VIRGINIA								479	105
Medical College of Virginia, Richmond.—R	87,246	215		38		52	32		
University College of Medicine, Richmond.—R	87,246	158		43		52	32		
University of Virginia, Charlottesville.—R	6,449	106		24		29	36		
WEST VIRGINIA								24	0
University of West Virginia, Morgantown.—R	6,000	24				10	35		
WISCONSIN								231	52
Milwaukee Medical College, Milwaukee.—R	317,903	130	8	43	0	53	32		
Wisconsin College of Phys. and Surg., Milwaukee.—R	317,903	57	1	9	0	49	32		
University of Wisconsin, College of Medicine, Madison.—R	25,128	23	3			48	34		

* Night schools. † Figures for 1906-7. R, Regular; H, Homeopathic; E, Eclectic; Ph.M., Physio-Medical; P, Panpathic.

Number.	NAME OF COLLEGE.	1 Alabama 683	2 Arizona 15	3 Arkansas 419	4 California 408	5 Colorado 156	6 Connecticut 273	7 Delaware 53	8 Dist. Columbia 122	9 Florida 132	10 Georgia 655	11 Idaho 24	12 Illinois 1,749	13 Indiana 711	14 Iowa 724	15 Kansas 468	16 Kentucky 636	17 Louisiana 493	18 Maine 182	19 Maryland 347	20 Massachusetts 860	Number.
1	Birmingham Medical College.—R	120								2	1			1				2				1
2	Medical College of Alabama.—R	156	1							1												2
3	Arkansas University, Medical Dept.—R			154									1		1	1	1	5				3
4	College of Physicians and Surgeons.—R		3	51	1								3			1	1	3		1		4
5	Cooper Medical College.—R				82								1	1	1				1		2	5
6	University of California, Medical Dept.—R				33								1									6
7	Hahnemann Med. Coll. of the Pacific.—H				31																	7
8	Coll. of P. and S., San Francisco.—R				53						1			1								8
9	Oakland Coll. of Med. and Surgery.—R				8																	9
10	Univ. of So. California, Coll. of Med.—R		1		82								1									10
11	College of P. and S., Los Angeles.—R		1		6								3	3	2	1						11
12	California Medical College, Los Angeles.—E				8																	12
13	Denver and Gross Coll. of Med.—R					45						1	4	3	3	2				1		13
14	Denver Coll. of Phys. and Surg.—P					46																14
15	Univ. of Colorado, School of Medicine.—R				1	25			1			2	3	1	1				1		2	15
16	Yale University, Dept. of Medicine.—R						98						3		1						8	16
17	George Wash. Univ., Dept. of Med.—R	2			1	2			42	1	1		11	2	3	4	2	3		12	3	17
18	Georgetown Univ., School of Med.—R	1			2		5		16												7	18
19	Howard University, Medical Dept.—R	4					1	2	48	3	11		3	1			1	6		8	2	19
20	Atlanta College of Phys. and Surg.—R	28								21	152						1	1				20
21	Atlanta School of Medicine.—R	25	1							19	196							1				21
22	Georgia Coll. of Eclectic M. and S.—E	6								3	58											22
23	Medical College of Georgia.—R									4	87							1				23
24	Internat. Med. Miss. Coll., Atlanta.—R										4											24
25	American Medical Missionary Coll.—R	1			1						1		3	2	1	2						25
26	Bennett Coll. of Eclectic M. and S.—E	2		3	1	2	1	1			1	2	51	8	6	2	1	1	1			26
27	Illinois Medical College.—R												24	22			1	1				27
28	College of Medicine and Surgery.—Ph.M												17	1	2							28
29	College of Physicians and Surgeons.—R			1	1	2			1		1		279	23	17	8	5	1				29
30	Hahnemann Med. Coll. and Hospital.—H			2									45	11	14	6						30
31	Hering Medical College.—H												35	4	2	3						31
32	Jenner Medical College.—R												175									32
33	Northwestern University Med. School.—R	2			8	5					3	141	46	74	18	3	2					33
34	Rush Medical College.—R	4		4	11	3			1	1	1	1	210	34	63	16	3	2	1			34
35	National Medical University.—P												123									35
36	Chicago Coll. of Med. and Surgery.—R	2		1	2	1	1						121	29	15	6	6				4	36
37	Reliance Medical College.—R												22	6	2		2			1		37
38	Physio-Medical Coll. of Indiana.—Ph.M													24								38
39	Eclectic Medical College of Indiana.—E													11								39
40	Indiana University School of Med.—R										2		3	282			1					40
41	Drake University Coll. of Medicine.—R					1							1		61	2						41
42	Keokuk Med. Coll. of P. and S.—R				1							1	33	1	45	5						42
43	Sioux City College of Medicine.—R														26							43
44	State Univ. of Iowa, Hom. Med. Dept.—H											1	1		36	1						44
45	State Univ. of Iowa, Med. Dept.—R												10		236					1		45
46	Kansas Medical College.—R						1									61						46
47	School of Medicine, Univ. of Kansas.—R															92						47
48	Western Eclectic Coll. of Med. and Surg.—E			3	1	1								1	2	12		1				48
49	Kentucky School of Medicine.—R	2	1	5						3	4	2	5	24			123	6			2	49
50	Louisville and Hospital Medical College.—R	4		12	1					2	1		10	31	2	4	172	4	1		1	50
51	Louisville National Medical College.—R	1								1				8		1	17					51
52	Southwestern Homeopathic Med. Coll.—H													4			7			1		52
53	Univ. of Louisville, Medical Dept.—R	3		3	1		2			2	2		14	27	7	1	148	6	1	1		53
54	Flint Med. Coll. of New Orleans Univ.—R	1		1							1							14				54
55	Tulane University, Medical Dept.—R	62	1	15						8	12							238	1			55
56	Med. School of Maine, Bowdoin Coll.—R																		80		8	56
57	Baltimore Medical College.—R	2		2	1		26	1		1	1								10	48	37	57
58	College of P. and S. of Baltimore.—R	2					17	2		1	2					1			2	34	19	58
59	Johns Hopkins Medical School.—R	6		3	12	1	17	1	3	1	6		5	4	6	4	8	3	6	33	3	59
60	Atlantic Medical College.—P						1	2											1	32		60
61	Woman's Med. Coll. of Baltimore.—R						2													4	2	61
62	Univ. of Maryland, School of Med.—R			1			5	8	1	5	5			1			1	1	1	19	2	62
63	Maryland Medical College.—R	1					4	1			2			1					1	31	4	63
64	Boston University School of Med.—H				1		2											1	4		61	64
65	College of Physicians and Surgeons.—R						4	3											4		123	65
66	Harvard University Medical School.—R			2	11	3	4		1				5	1	1	1	2		10		174	66
67	Tufts College Medical School.—R						6						1						18		289	67
68	Detroit College of Medicine.—R					1							2	4								68
69	Detroit Homeopathic Med. College.—H																					69
70	Univ. of Michigan, Dept. of M. and S.—R	1			5	2	1				2	2	22	25	5	1	6		1		2	70
71	Univ. of Mich., Homeo. Med. College.—H												2	4	2							71
72	Coll. of Hom. M. and S., U. of Minn.—H																					72
73	College of M. and S., Univ. of Minn.—R		1										1	1	2							73
74	Hamline University, Medical Dept.—R												1									74
75	Med. Dept., Univ. of Miss., Oxford.—R										1							1				75
76	Mississippi Med. Coll., Meridian.—R	5																1				76
77	Univ. Med. Coll. of Kansas City.—R			1		1									2	72		1				77
78	Kansas City Hahnemann Med. Coll.—H				1								3	1	5	21						78
79	Ensworth Medical College.—R												2		11	15						79
80	Barnes Medical College.—R			7		2						5	83	3	3	7	7	3				80
81	St. Louis University Med. Dept.—R	1		7	2	2							59	3	12	7	2	2		1		81
82	St. Louis Coll. of Phys. and Surgs.—R			2									82	2	3	3	4	1				82
83	American Medical College.—E																					83
84	Hippocratean College of Medicine.—R																					84
85	Homeo. Med. College of Missouri.—H		1	1									10	3	1							85
86	Univ. of Missouri, Dept. of Med.			2		1								1	1	1						86
87	Washington Univ., Medical Dept.—R	1		4		1							48	4	2	3	3			1		87
88	Univ. of Nebraska, Coll. of Med.—R														5	1						88
89	John A. Creighton Med. College.—R				1								1			41					1	89
90	Lincoln Medical College.—E			1												3						90
91	Nebraska College of Medicine.—R												1	2	1							91
92	Dartmouth Medical College.—R						5						2						4		17	92
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

Number.	21 Michigan 493	22 Minnesota 371	23 Mississippi 603	24 Missouri 919	25 Montana 43	26 Nebraska 332	27 New Hampshire 119	28 New Jersey 452	29 New Mexico 11	30 New York 2,116	31 Nevada 8	32 North Carolina 502	33 North Dakota 76	34 Ohio 912	35 Oklahoma 152	36 Oregon 131	37 Pennsylvania 2,104	38 Rhode Island 99	39 South Carolina 343	40 South Dakota 71	41 Tennessee 677	42 Texas 874	43 Utah 99	44 Vermont 106	45 Virginia 521	46 Washington 103	47 West Virginia 292	48 Wisconsin 478	49 Wyoming 6	50 Foreign 539	51 P. I., Ha., P.R. 33	52 Total 22,602	Number.
1	....	....	3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	1	2	....	....	....	....	....	....	....	....	....	134	1
2	....	....	9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	....	....	....	....	....	....	....	....	....	169	2
3	....	....	....	1	....	....	....	....	....	2	....	....	....	....	8	....	....	....	....	....	....	3	....	....	....	....	....	....	....	....	....	177	3
4	....	....	3	2	....	....	....	....	....	....	....	....	....	....	12	....	....	....	....	....	3	2	....	....	....	....	....	....	....	1	....	87	4
5	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	5	....	97	5
6	1	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	36	6
7	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	2	1	....	....	1	....	....	....	2	....	33	7
8	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	9	....	70	8
9	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	10	9
10	1	....	....	....	....	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	89	10
11	....	....	....	6	....	....	....	1	2	1	....	....	....	....	1	....	....	....	....	....	....	1	....	....	....	....	....	1	....	8	....	37	11
12	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	8	12
13	....	....	1	3	1	1	1	1	....	5	....	....	....	2	....	....	2	....	....	....	....	....	1	....	....	1	....	....	1	....	....	79	13
14	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	46	14
15	1	....	....	....	....	....	....	....	....	2	....	1	....	2	....	....	1	....	....	....	1	....	....	1	....	....	....	....	....	....	....	52	15
16	3	....	....	1	....	....	....	1	....	8	....	....	....	2	....	1	2	2	....	....	....	....	....	3	....	....	....	1	....	4	....	136	16
17	2	4	....	2	1	2	1	1	....	10	....	8	1	9	3	1	17	2	4	....	2	2	4	1	19	....	4	1	....	8	....	198	17
18	2	....	....	....	....	....	....	1	....	11	....	1	....	1	1	....	10	8	....	....	....	....	....	....	7	....	2	2	....	4	....	82	18
19	....	....	3	2	1	....	....	3	....	10	....	3	....	5	1	....	8	1	9	1	1	4	....	....	26	....	6	....	....	29	2	205	19
20	....	....	1	....	....	....	....	....	1	1	....	6	....	....	2	....	....	....	16	....	....	3	....	....	....	....	....	....	....	1	....	234	20
21	....	....	3	....	....	....	....	....	....	1	....	8	....	....	....	....	....	....	12	....	2	....	....	2	....	....	2	....	....	2	....	274	21
22	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	71	22
23	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	17	....	....	....	....	....	2	....	....	1	....	....	....	113	23
24	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	5	24
25	9	....	1	1	....	....	....	....	....	1	....	....	....	6	....	....	1	....	....	1	....	....	....	....	....	....	....	....	....	11	....	42	25
26	12	1	....	1	....	7	1	1	....	4	1	1	1	5	1	1	17	....	....	1	1	1	....	1	1	1	....	2	1	4	....	150	26
27	....	....	....	....	....	....	....	....	....	....	....	1	....	3	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	53	27
28	....	2	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	28	28
29	8	8	....	10	4	7	....	1	....	1	....	....	1	11	1	1	....	....	6	2	1	4	....	....	....	5	1	37	1	7	7	463	29
30	6	2	1	....	1	1	....	....	....	4	....	....	....	5	....	....	2	....	1	....	1	....	1	....	....	....	....	8	....	6	....	117	30
31	3	1	....	2	....	1	....	....	....	1	....	....	....	1	1	....	....	....	....	....	1	1	....	....	....	....	....	....	....	2	....	58	31
32	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	175	32
33	31	28	2	5	5	15	....	1	....	2	....	....	12	11	....	....	....	....	....	12	2	5	15	....	....	7	1	69	1	7	....	533	33
34	15	16	5	20	3	10	....	2	....	4	....	2	5	28	4	6	9	1	....	6	2	9	5	2	3	8	1	51	....	14	....	586	34
35	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	123	35
36	20	8	2	4	1	3	....	....	....	8	....	1	5	18	1	....	20	2	....	2	1	6	5	....	....	....	3	14	....	13	....	325	36
37	1	1	1	....	1	....	....	....	....	2	....	....	1	1	....	....	2	....	....	....	1	1	....	....	....	....	....	3	....	14	....	62	37
38	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	24	38
39	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	12	39
40	1	....	....	....	1	....	....	1	....	....	....	....	2	8	....	....	....	....	....	....	3	1	....	....	....	....	1	....	....	2	....	368	40
41	....	....	....	2	1	....	....	....	....	....	....	....	2	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	....	75	41
42	....	1	....	12	1	1	....	....	....	....	....	1	1	....	1	1	1	....	5	....	....	....	....	....	....	1	....	2	....	1	....	115	42
43	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	26	43
44	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	44	44
45	1	6	....	2	1	1	....	....	....	....	....	....	1	....	....	1	....	....	2	....	....	....	....	....	....	2	....	2	....	....	....	266	45
46	....	....	....	2	....	....	....	....	....	....	....	....	....	2	1	....	1	....	....	....	1	....	....	....	....	....	....	....	....	....	....	69	46
47	....	....	....	9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	101	47
48	....	....	....	10	1	1	....	....	....	....	....	....	....	1	2	....	....	....	....	....	....	3	....	....	....	....	....	....	....	2	....	41	48
49	3	4	2	9	1	2	1	4	....	3	1	2	....	8	....	....	3	....	....	5	20	....	4	....	3	15	2	....	....	1	....	270	49
50	1	2	12	10	....	1	....	....	....	4	....	....	....	2	1	....	3	....	1	....	10	20	....	....	2	....	....	20	....	1	....	345	50
51	....	....	2	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	1	1	....	....	2	....	1	....	....	....	....	36	51
52	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	13	52
53	1	....	7	11	1	1	....	3	....	2	....	1	....	5	3	....	13	....	5	1	4	10	....	....	2	....	42	....	....	1	....	331	53
54	....	....	12	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	....	....	....	....	....	....	....	2	....	31	54
55	....	....	106	....	....	....	....	....	....	1	....	1	....	....	....	....	....	....	4	....	10	71	....	....	1	....	....	....	....	4	....	535	55
56	....	....	....	....	....	....	1	....	....	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	2	....	91	56
57	....	....	....	....	....	....	8	28	....	43	....	3	....	5	....	....	46	6	3	....	....	....	....	1	12	....	20	....	....	19	....	323	57
58	....	....	....	....	1	....	....	20	....	16	....	2	....	12	....	....	34	14	1	....	....	....	2	....	5	....	48	....	....	18	....	253	58
59	2	1	1	7	1	1	3	7	....	29	....	9	1	15	....	4	28	2	4	1	2	10	1	1	12	7	4	5	....	1	....	281	59
60	....	....	....	....	....	....	....	....	....	3	....	....	....	....	....	....	12	....	....	....	....	....	....	....	2	....	1	....	....	....	....	37	60
61	....	....	....	....	....	....	....	1	....	3	....	3	....	1	....	....	3	....	1	....	....	....	....	....	....	....	2	1	....	1	4	28	61
62	....	1	....	1	....	....	1	12	1	17	....	38	....	1	1	....	21	....	22	....	1	....	....	1	18	....	13	....	....	17	....	316	62
63	....	....	....	....	....	....	1	4	....	4	....	....	....	....	....	....	11	....	5	....	1	1	....	....	5	....	18	....	....	5	....	100	63
64	2	....	....	....	....	....	4	....	....	5	....	....	....	2	....	....	3	4	....	....	....	....	....	5	....	....	....	....	....	5	....	102	64
65	....	....	....	....	....	....	5	....	....	6	....	....	....	....	....	....	2	3	....	....	....	....	....	....	....	....	....	....	....	12	....	162	65
66	2	2	....	1	....	2	10	3	....	11	....	1	....	7	....	1	4	12	2	....	....	4	....	2	1	2	1	....	1	14	....	298	66
67	....	1	....	....	....	....	20	....	....	4	....	....	....	1	....	....	....	15	1	....	....	....	....	5	....	....	....	....	....	8	2	371	67
68	100	....	....	....	....	....	....	....	....	2	....	....	....	5	....	....	2	....	....	....	1	....	....	....	....	....	....	1	....	28	....	146	68
69	18	....	....	....	....	....	....	....	....	2	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	22	69
70	174	4	1	4	4	2	....	....	....	27	....	2	....	33	1	1	25	1	2	4	....	5	2	1	1	5	1	7	....	8	....	390	70
71	31	1	....	....	....	1	....	....	....	19	1	....	....	9	....	....	7	....	....	2	1	....	....	....	....	....	1	....	....	1	....	82	71
72	....	6	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	5	....	....	....	....	....	....	....	....	....	....	....	6	72
73	....	140	....	....	1	....	....	....	....	1	....	....	7	....	....	....	....	....	....	1	....	....	....	1	....	2	....	5	....	....	....	166	73
74	....	106	....	....	1	....	....	....	....	....	....	....	11	1	....	....	....	....	....	....	....	....	....	1	....	1	....	1	....	2	....	126	74
75	....	....	26	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	28	75
76	....	....	99	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	105	76
77	....	....	....	101	1	....	....	....	1	....	....	....	1	1	6	....	....	1	....	....	....	....	....	....	....	1	....	....	1	1	....	192	77
78	1	....	....	12	....	1	....	....	....	2	....	....	....	1	....	....	1	....	1	1	3	....	....	....	....	2	1	1	....	3	....	62	78
79	....	....	....	51	....	3	....	....	....	....	....	....	1	....	5	....	2	....	....	....	....	....	....	....	....	....	....	....	....	1	....	91	79
80	2	1	....	168	1	2	....	....	....	....	....	1	....	....	3	....	....	....	....	2	1	13	....	....	....	2	3	2	....	2	....	323	80
81	4	2	....	94	....	1	....	....	1	2	....	....	....	5	3	1	3	....	....	....	2	2	1	....	....	2	....	16	....	5	1	241	81
82	....	1	2	49	....	....	....	....	....	1	....	....	....	....	1	1	....	....	....	....	2	8	....	....	....	....	....	....	....	2	....	164	82
83	....	....	....	41	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	41	83
84	....	....	....	32	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	34	84
85	....	....	....	9	....	....	....	....	....	1	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	27	85
86	....	....	....	52	....	....	....	....	....	1	....	....	....	....	1	1	....	....	....	....	....	2	....	....	....	....	....	....	....	2	....	65	86
87	1	....	1	120	....	....	....	....	....	1	....	....	....	1	4	....	....	....	....	....	3	....	....	....	....	1	....	1	....	8	....	208	87
88	....	....	....	2	....	87	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	1	....	....	....	98	88
89	2	2	....	1	....	100	....	....	....	....	....	....	1	1	....	....	1	....	....	5	....	....	....	....	....	1	....	....	....	....	....	158	89
90	....	....	....	1	....	40	....	....	....	....	....	....	....	....	....	1	....	....	....	2	1	1	....	....	....	....	....	....	....	....	....	50	90
91	....	....	....	1	....	27	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	1	....	34	91
92	....	....	....	....	....	....	26	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	3	....	....	....	....	....	....	....	58	92
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	

Number.	NAME OF COLLEGE.	1 Alabama 683	2 Arizona 15	3 Arkansas 419	4 California 408	5 Colorado 156	6 Connecticut 273	7 Delaware 53	8 Dist. Columbia 122	9 Florida 132	10 Georgia 655	11 Idaho 24	12 Illinois 1,749	13 Indiana 711	14 Iowa 724	15 Kansas 468	16 Kentucky 630	17 Louisiana 493	18 Maine 182	19 Maryland 347	20 Massachusetts 860	Number.
93	Albany Medical College.—R	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	6	93
94	College of Physicians and Surgeons.—R	5	....	....	3	....	10	....	....	....	2	....	5	1	2	1	3	....	5	....	8	94
95	Cornell University Medical College.—R	....	....	1	1	....	6	....	....	....	....	....	2	1	....	....	2	1	5	....	7	95
96	Eclectic Medical College.—E	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	96
97	Long Island College Hospital.—H	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	1	1	97
98	New York Homeo. M. C. and Hosp.—H	....	....	....	2	....	1	....	....	....	....	....	....	....	....	....	....	....	1	....	....	98
99	N. Y. Med. Coll. and Hosp. for Women.—H	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	99
100	Univ. and Bellevue Hosp. Med. Coll.—R	....	....	....	3	2	11	....	....	1	....	....	2	1	1	....	1	....	1	1	7	100
101	Fordham Univ. School of Med.—R	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	101
102	Syracuse Univ. Coll. of Med.—R	....	....	....	....	....	1	....	....	....	....	....	....	....	....	1	....	....	....	....	1	102
103	University of Buffalo, Medical Dept.—R	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	103
104	Leonard Medical School.—R	13	....	1	....	....	....	....	2	8	9	....	....	....	....	....	....	1	....	2	....	104
105	Wake Forest School of Medicine.—R	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	105
106	North Carolina Medical College.—R	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	106
107	Univ. of North Carolina, Med. Dept.—R	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	107
108	Univ. of North Dakota, Med. Dept.—R	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	108
109	Western Reserve Univ. Med. Coll.—R	....	....	....	....	....	....	....	....	....	....	....	....	10	2	2	....	....	....	....	2	109
110	Cleveland Coll. of Phys. and Surgs.—R	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	110
111	Cleveland Homeopathic Med. Coll.—H	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	111
112	Eclectic Medical Institute.—E	....	....	1	....	2	....	....	....	....	2	....	6	8	1	1	7	....	....	....	....	112
113	Medical College of Ohio.—R	....	1	....	....	....	....	....	....	....	....	....	....	6	....	....	16	....	....	....	1	113
114	Pulte Medical College.—H	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	1	....	....	114
115	Miami Medical College.—R	....	....	....	....	....	....	....	....	....	....	....	1	2	....	....	5	....	....	....	....	115
116	Starling-Ohio Medical College.—R	....	....	....	....	....	....	....	....	....	....	....	1	1	1	....	....	....	....	....	2	116
117	Toledo Medical College.—R	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	117
118	College of Medicine, Epworth Univ.—R	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	118
119	School of Med., Univ. of Oklahoma.—R	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	119
120	University of Oregon, Medical Dept.—R	....	....	....	1	....	....	....	....	....	....	2	1	....	1	....	....	....	....	....	....	120
121	Willamette Univ., Medical Dept.—R	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	121
122	Temple Coll. of Phila., Dept. of Med.—R	....	....	....	1	....	2	2	....	....	....	....	1	....	....	....	....	....	....	....	....	122
123	Univ. of Pennsylvania, Dept. of Med.—R	4	....	3	3	1	4	6	....	1	5	1	4	5	5	5	1	1	1	2	12	123
124	Hahnemann Med. Coll. and Hosp.—H	....	....	....	1	....	3	3	....	....	....	....	2	....	3	1	3	....	2	3	2	124
125	Jefferson Medical College.—R	5	1	4	7	....	13	9	1	....	10	....	8	3	3	4	4	1	1	....	9	125
126	Woman's M. C. of Pennsylvania.—R	....	....	1	3	....	....	2	4	....	1	....	....	....	....	1	2	....	3	....	3	126
127	Medico-Chirur. Coll. of Philadelphia.—R	....	....	....	1	....	4	6	....	....	....	1	....	2	....	....	1	1	....	2	2	127
128	Western Pennsylvania Med. Coll.—R	....	....	....	1	....	....	....	....	....	....	....	....	....	1	2	....	....	....	....	....	....	128
129	Med. Coll. of State of South Carolina.—R	....	....	....	....	....	....	....	....	8	1	....	....	....	....	....	....	....	....	....	....	129
130	Univ. of South Dakota, Coll. of Medicine.—R	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	130
131	Tennessee Medical College.—R	....	....	....	....	....	....	....	....	....	2	....	1	....	....	....	4	....	....	....	....	131
132	Knoxville Medical College.—R	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	132
133	University of Nashville, Med. Dept.—R	39	....	12	....	....	....	....	....	8	3	....	5	....	....	....	10	37	....	....	....	133
134	Vanderbilt University, Med. Dept.—R	36	....	5	2	....	....	....	....	....	6	....	4	1	....	....	19	9	....	....	....	134
135	University of Tennessee, Med. Dept.—R	15	....	2	2	....	....	....	....	1	1	....	3	....	1	....	7	8	....	....	....	135
136	Meharry Medical College.—R	24	....	13	....	1	....	....	....	6	30	....	7	2	2	4	8	11	....	....	....	136
137	Memphis Hospital Medical College.—R	14	....	53	....	....	....	....	....	1	2	....	....	....	....	....	2	80	....	....	....	137
138	Memphis Coll. of Phys. and Surgs.—R	....	....	6	....	....	....	....	....	....	3	....	....	....	....	....	....	1	....	....	....	138
139	Univ. of West Tennessee, Med. Dept.—R	1	....	5	....	....	....	....	....	....	1	....	....	....	....	....	....	5	....	....	....	139
140	University of the South.—R	20	....	4	....	....	....	....	....	2	9	....	....	1	....	....	2	10	....	....	....	140
141	Chattanooga Medical College.—R	57	1	2	1	1	3	....	....	10	7	....	4	1	1	2	5	1	1	1	1	141
142	Ft. Worth University, Med. Dept.—R	....	....	1	2	....	....	....	....	....	....	....	....	1	....	1	....	....	....	....	....	142
143	University of Texas, Dept. of Med.—R	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	143
144	Baylor Univ. Coll. of Med.—R	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	144
145	Physio-Medical Coll. of Texas.—Ph.M	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	145
146	Southwestern Univ. Med. Coll.—R	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	146
147	College of Physicians and Surgeons.—R*	1	....	12	....	....	....	....	....	....	....	....	1	....	1	9	1	6	....	....	1	147
148	University of Utah, Medical Dept.—R	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	148
149	University of Vermont, Medical Dept.—R	....	....	....	....	....	8	....	....	....	....	....	....	....	....	....	....	....	12	....	16	149
150	Medical College of Virginia.—R	1	....	1	....	....	....	....	....	2	....	....	....	....	....	....	....	1	....	....	....	150
151	University College of Medicine.—R	1	....	....	1	....	....	2	....	1	2	....	....	....	....	....	1	....	....	....	1	151
152	University of Virginia, Dept. of Med.—R	2	....	2	....	....	....	1	1	2	3	....	1	....	....	1	1	....	....	5	....	152
153	University of West Virginia.—R	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	153
154	Marquette University, Medical Dept.—R	....	....	....	1	....	....	....	....	....	....	....	....	....	3	....	....	....	....	....	....	154
155	Wisconsin Coll. of Phys. and Surgs.—R	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	155
156	Univ. of Wisconsin, College of Medicine.—R	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	156
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

R, Regular; H, Homeopathic; E, Eclectic; Ph. M., Physio-Medical; P, Panpathic.
* Figures for 1906-7. † Figures exact; distribution based on that of 1906-7.

(*Continued from page 585.*)

direct written communication certifying to the applicant's professional and moral qualifications, and to the exact work he had done in said college.

CURRICULUM.

	No. of Hours of Lectures.	Hours of Laboratory.	Hours of Clinics.	Total.
Histology	30	60	..	90
Embryology	30	60	..	90
Osteology	30	..	..	30
Anatomy	190	230	..	420
Physiology	180	120	..	300
Chemistry and Toxicology	100	200	..	300
Materia Medica	40	20	..	60
Pharmacology	40	20	..	60
Therapeutics	90	..	..	90
Bacteriology	40	100	..	140
Pathology	100	140	..	240
Medical Zoology, Postmortem Work and Clinical Microscopy	30	60	..	90
Physical Diagnosis	20	..	80	100
Practice of Medicine	180	..	360	540
Surgery	180	..	360	540
Obstetrics	100	..	60	160
Gynecology	50	..	110	160
Pediatrics	40	..	60	100
Eye and Ear	30	..	30	60
Nose and Throat	30	..	30	60
Mental and Nervous Diseases	60	..	60	120
Electro-Therapeutics	20	..	40	60
Genito-Urinary Diseases	30	..	30	60
Dermatology and Syphilis	20	..	20	40
Hygiene and Public Health	30	..	..	30
Dietetics	30	..	..	30
Medical Jurisprudence	30	..	..	30
	1,750	1,010	1,240	4,000

No time credit shall be given to holders of a Bachelor's degree, but subject credit can be given on satisfactory examination. Four years of residence in a medical college shall be required of all candidates for the degree of doctor of medicine.

Medical Education.—Candidates for the degree of Doctor of Medicine shall have attended four courses of study in four calendar years, each annual course to have been of not less than thirty teaching weeks' duration, and at least ten months shall intervene

Number.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	Number.
	Michigan..... 493	Minnesota 371	Mississippi 603	Missouri..... 919	Montana 43	Nebraska..... 332	New Hampshire. 119	New Jersey..... 452	New Mexico..... 11	New York. 2,116	Nevada..... 8	North Carolina.. 502	North Dakota... 76	Ohio..... 912	Oklahoma..... 152	Oregon 131	Pennsylvania.. 2,104	Rhode Island.... 99	South Carolina.. 343	South Dakota.... 71	Tennessee..... 677	Texas..... 874	Utah..... 99	Vermont 106	Virginia..... 521	Washington 103	West Virginia... 202	Wisconsin 478	Wyoming 6	Foreign..... 539	P. I., Ha., P.R. 23	Total..... 22,602	
93	....	....	....	....	....	....	1	....	....	168	....	....	....	....	....	....	1	....	....	....	....	....	....	2	....	....	....	....	....	1	....	180	93
94	....	3	3	3	1	....	2	41	....	184	1	1	1	5	....	3	5	3	3	....	1	1	1	....	....	2	1	3	....	9	....	322	94
95	....	....	....	....	2	....	1	28	....	245	....	....	....	2	....	1	4	2	....	....	....	2	....	....	....	1	....	....	....	2	....	316	95
96	....	....	....	....	....	....	....	5	....	50	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	56	96
97	....	....	....	....	....	....	1	26	....	299	....	....	....	2	....	....	1	1	....	....	....	....	....	1	....	....	....	....	....	2	....	337	97
98	....	....	....	....	....	....	....	17	....	50	....	....	....	....	....	....	4	....	....	....	....	1	....	1	....	....	....	....	....	3	....	80	98
99	1	....	....	....	....	....	....	2	....	10	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	99
100	1	....	1	2	....	....	1	69	....	379	....	....	....	3	....	....	1	4	....	....	1	....	....	1	1	....	....	....	....	5	....	20	99
101	....	....	....	....	....	....	....	1	....	27	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	8	....	503	100
102	....	....	....	....	....	....	....	1	....	137	....	....	....	1	....	....	4	....	....	....	....	....	....	....	....	....	....	....	....	....	....	30	101
103	....	....	....	....	....	....	....	....	....	165	....	....	....	....	....	....	7	....	....	....	....	1	....	....	....	....	....	....	....	1	3	150	102
104	....	....	5	1	....	....	1	....	....	2	....	47	....	....	1	....	5	....	14	....	1	5	....	....	22	....	....	....	....	2	....	176	103
105	....	....	....	....	....	....	....	....	....	....	....	35	....	....	....	....	....	....	4	....	....	....	....	....	....	....	....	....	....	6	....	146	104
106	....	....	....	....	....	....	....	....	....	....	....	76	....	....	....	....	....	....	6	....	....	....	....	....	....	....	....	....	....	....	....	40	105
107	....	....	....	....	....	....	....	....	....	4	....	103	....	....	....	....	2	....	1	....	....	....	....	....	2	....	....	....	....	1	....	82	106
108	....	2	....	....	1	....	....	....	....	....	....	....	16	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	114	107
109	....	1	....	....	....	....	....	....	1	4	....	....	....	72	....	....	8	....	....	1	....	....	....	....	....	....	1	....	....	....	....	20	108
110	1	....	....	....	1	....	1	....	....	....	....	....	....	82	....	....	1	....	....	....	1	....	....	....	....	....	....	....	....	2	....	104	109
111	1	....	....	....	....	....	....	1	....	3	....	....	....	26	....	....	10	....	....	....	....	....	....	....	....	....	....	....	....	1	....	90	110
112	....	....	....	2	....	....	....	3	....	....	....	....	....	32	....	....	9	....	....	....	1	....	....	....	....	1	15	....	....	....	....	42	111
113	....	....	....	....	....	....	1	....	....	1	....	....	....	83	....	....	....	....	....	....	....	....	1	....	....	....	1	....	....	6	....	91	112
114	....	....	....	....	....	....	....	....	....	....	....	....	....	10	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	117	113
115	....	....	....	....	....	....	....	....	....	....	....	....	....	61	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	15	114
116	....	....	....	....	....	....	....	....	....	....	....	....	1	193	....	....	8	....	....	....	....	....	....	....	....	....	....	....	....	....	....	70	115
117	4	....	....	....	....	....	....	....	....	....	....	....	....	21	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	2	....	209	116
118	....	....	....	....	....	....	....	....	....	....	....	....	....	....	21	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	29	117
119	....	....	....	....	....	....	....	....	....	....	....	....	....	....	8	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	21	118
120	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	59	1	....	....	....	....	....	....	....	....	20	....	....	....	2	....	8	119
121	....	....	....	....	....	....	....	4	....	1	....	....	....	1	....	30	....	....	....	....	....	....	....	....	....	2	....	....	....	2	....	88	120
122	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	106	....	....	....	....	....	....	....	....	....	....	....	....	16	....	35	121
123	1	5	2	3	....	1	3	36	....	17	....	8	....	17	....	1	372	2	3	....	3	11	4	1	5	5	4	4	....	32	....	134	122
124	....	....	1	1	....	....	....	25	....	8	....	....	....	6	....	....	98	....	....	....	....	....	....	....	....	....	....	1	....	5	....	604	123
125	4	3	1	2	1	4	4	45	....	17	....	25	2	17	2	7	409	5	1	1	2	2	18	2	5	7	9	3	....	12	....	168	124
126	3	....	....	1	....	2	....	7	....	10	....	....	....	4	....	2	59	1	3	....	1	....	....	....	2	1	....	....	....	22	....	693	125
127	1	1	....	....	....	....	....	31	1	7	....	....	1	1	....	....	321	....	....	....	....	....	5	....	....	1	....	1	....	28	....	138	126
128	....	....	....	....	....	....	....	1	....	4	....	....	....	19	....	....	321	....	....	....	....	....	....	....	....	....	12	....	....	....	1	419	127
129	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	141	....	1	....	....	....	1	....	....	....	....	....	....	362	128
130	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	....	....	....	....	....	....	....	....	....	....	....	153	129
131	....	....	1	....	....	....	....	....	....	....	1	13	....	....	....	1	....	1	1	....	49	2	....	....	5	....	2	....	....	....	....	3	130
132	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	23	....	....	....	....	....	....	....	....	....	....	83	131
133	....	....	43	1	....	....	....	1	....	5	....	9	....	....	4	....	1	....	9	....	94	14	....	....	3	....	2	....	....	2	....	23	132
134	1	....	14	4	....	1	....	....	....	....	....	1	....	....	3	....	....	....	7	....	71	21	....	....	....	1	....	....	....	1	....	302	133
135	....	....	6	1	....	....	....	1	....	....	....	6	....	....	1	....	1	....	2	....	70	9	....	....	....	....	....	....	....	....	....	207	134
136	....	....	33	18	....	....	....	1	....	....	....	8	....	2	3	....	1	....	18	....	49	31	....	....	3	....	1	....	....	9	....	137	135
137	....	....	130	2	1	....	....	....	....	....	....	....	....	1	6	....	....	....	....	....	52	42	....	....	....	....	....	....	....	....	....	285	136
138	....	....	31	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	25	3	....	....	....	....	....	....	....	....	....	386	137
139	....	....	1	....	....	....	....	1	....	....	....	2	....	....	....	....	2	....	1	....	14	1	....	....	....	....	....	....	....	1	....	69	138
140	....	....	13	....	....	....	....	....	....	....	....	2	....	....	1	....	2	....	2	....	12	15	....	....	3	....	....	....	....	1	....	35	139
141	7	....	7	2	1	....	....	1	1	7	....	12	....	6	2	1	11	1	3	2	70	2	1	....	12	2	6	3	....	3	....	99	140
142	....	....	....	1	....	....	....	....	....	....	....	....	....	1	8	....	....	....	....	....	....	92	....	....	....	....	....	....	....	1	....	262	141
143	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	197	....	....	....	....	....	....	....	....	....	108	142
144	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	1	58	....	....	....	....	....	....	....	....	....	198	143
145	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	58	....	....	....	....	....	....	....	....	....	62	144
146	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	38	....	....	....	....	....	....	....	....	....	38	145
147	....	....	....	....	....	....	....	....	1	1	....	....	....	....	19	....	....	....	....	....	2	44	....	....	3	1	....	....	....	....	....	63	146
148	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	27	....	....	....	....	....	....	1	....	103	147
149	....	....	....	....	....	....	20	1	....	15	....	....	....	1	....	....	1	2	....	....	....	....	....	63	....	....	....	....	....	3	....	28	148
150	....	....	....	....	....	....	....	1	....	1	....	21	....	....	....	....	....	....	9	....	1	1	....	....	161	....	14	....	....	1	....	142	149
151	....	....	....	....	....	....	....	4	....	....	....	28	....	....	....	....	....	....	....	....	1	....	....	....	107	....	7	....	....	1	1	215	150
152	....	....	4	....	....	....	....	....	....	2	....	7	....	....	....	1	3	1	2	....	2	1	....	....	60	....	2	1	....	1	....	158	151
153	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	22	....	....	....	2	106	152
154	6	2	....	....	....	1	....	1	....	1	....	....	1	....	....	....	....	....	....	1	....	....	....	....	1	....	....	126	....	3	....	24	153
155	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	57	....	....	....	147	154
156	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1	....	22	....	....	....	58	155
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	26

between the beginning of any course and the beginning of the preceding course. No time credit shall be given to holders of a Bachelor's degree, but subject credit may be given on satisfactory examination. Four years of residence in a medical college shall be required of all candidates for the degree of doctor of medicine.

The entire course of four years shall consist of at least 4,000 hours, divided into the subjects as shown in the opposite table, and no college shall be recognized that falls below this standard over 20 per cent. in any one branch or over 10 per cent. in the total. Laboratory or clinic hours may be substituted for didactic hours.

Each student shall be obliged to attend 80 per cent. of the exercises in every annual course of study for which he seeks credit. No student shall be given credit on examination unless he attains a grade of at least 70 per cent., or its equivalent, in any other marking system. And no student shall be graduated unless he shall have attained a passing grade in each and all subjects of the required curriculum.

A college which gives less than a four years' course of study, but does not graduate students, and is possessed of other required qualifications, may be admitted to membership.

Each medical college in membership in the Association shall print in every annual catalogue or announcement a table of the total number of hours work given in said college, arranged both by subjects and years.

College of Medicine University of Southern California, Los Angeles, Cal.; Cooper Medical College, San Francisco, Cal.; University of California Medical Department, Berkeley and San Francisco, Cal.; Colorado School of Medicine, University of Colorado, Boulder, Colo.; Denver and Gross College of Medicine, Medical Department of the University of Denver, Denver, Colo.; George Washington University Department of Medicine, Washington, D. C.; Georgetown University School of Medicine, Washington, D. C.; Howard University Medical Department, Washington, D. C.; American Medical Missionary College, Battle Creek, Mich., and Chicago, Ill.; College of Medicine of the University of Illinois (College of Physicians and Surgeons), Chicago, Ill.; University of Indiana School of Medicine, Bloomington and Indianapolis, Ind.; Drake University College of Medicine, Des Moines, Iowa; College of Medicine University of Iowa, Iowa City, Iowa; Kansas Medical College, Medical Department of Washburne College, Topeka, Kan.; School of Medicine, University of Kansas, Lawrence, Kan.; Kentucky School of Medicine, Louisville, Ky.; Louisville and Hospital Medical College, Louisville, Ky.; University of Louisville, Medical Department, Louisville, Ky.; Baltimore Medical College, Baltimore, Md.; College of Physicians and Surgeons, Baltimore, Md.; Johns Hopkins University, Medical Department, Baltimore, Md.; University of Maryland School of Medicine, Baltimore, Md.; Woman's Medical College, Baltimore, Md.; Detroit College of Medicine, Detroit, Mich.; University of Michigan, Department of Medicine and Surgery, Ann Arbor, Mich.; Medical Department University of Mississippi, Oxford, Miss.; University of Missouri Department of Medi-

(*Continued on page 603.*)

COLLEGES.	1901		1902		1903		1904		1905		1906		1907		1908		Totals.		
	Students.	Graduates.	Students.	Graduates.	Students.	Graduates.	Students.	Graduates.	Students.	Graduates.	Students.	Graduates.	Students.	Graduates.	Students.	Graduates.	Students.	Graduates.	Percentage of Grads.
ALABAMA.																			
Birmingham Medical College	77	15	82	8	94	22	104	5	75	16	72	8	113	12	134	16	751	102	13.6
Medical College of Alabama	130	38	136	13	145	12	167	38	170	31	158	29	170	28	169	25	1,245	214	17.2
ARKANSAS.																			
University of Arkansas	240	20	220	11	236	12	115	19	220	28	176	26	182	26	177	19	1,566	161	10.3
CALIFORNIA.																			
Cooper Medical College	167	27	214	25	212	45	193	44	155	37	136	30	112	29	97	24	1,286	261	20.3
University of California	164	28	151	24	115	26	113	27	104	17	90	19	54	24	36	16	827	181	21.9
California Medical College	49	10	84	6	60	7	47	8	40	8	45	10	.....	.....	8	1	333	50	15.0
Hahnemann Medical College	40	6	45	8	38	12	33	8	34	9	24	4	28	2	33	9	275	58	21.1
Coll. of P. and S., San Francisco	171	38	180	41	146	28	124	29	144	29	145	30	79	16	70	16	1,059	227	21.4
Oakland Coll. of M. and S	.....	.....	.....	.....	6	0	8	0	12	0	10	4	10	2	10	1	56	7	12.5
Univ. of Southern California	87	19	102	14	106	27	110	24	115	23	127	28	99	27	89	26	835	188	22.5
Coll. of P. and S., Los Angeles	.....	.....	.....	.....	.....	.....	.....	.....	25	6	31	3	34	2	37	10	127	21	16.5
COLORADO.																			
Denver and Gross	138	35	133	35	130	33	127	32	115	31	100	26	101	29	79	22	923	243	26.3
Denver Coll. of Phys. and Surg	40	5	34	10	29	6	32	7	29	6	23	5	42	6	46	6	275	51	18.6
University of Colorado	70	9	63	13	63	8	52	17	54	6	70	16	58	12	52	11	482	92	19.1
CONNECTICUT.																			
Yale Medical College	133	18	145	20	145	27	140	23	138	22	134	25	153	29	136	29	1,124	193	17.2
DIST. OF COLUMBIA.																			
George Washington Univ	249	26	257	26	260	34	306	52	298	62	280	51	215	63	198	45	2,063	359	17.4
Georgetown University	123	21	130	13	144	22	140	32	133	32	102	20	82	12	82	27	936	179	19.1
Howard University	142	19	145	27	141	29	155	36	153	21	157	29	186	44	205	24	1,284	229	17.8
GEORGIA.																			
College of P. and S., Atlanta	282	67	257	111	200	34	215	31	250	48	180	52	200	37	234	29	1,818	409	22.5
Georgia Eclectic Med. Coll	55	21	58	21	46	2	54	17	53	14	57	15	76	12	71	23	470	125	26.6
University of Georgia	107	30	121	47	110	7	115	26	108	14	113	30	98	20	113	32	885	206	23.2
Atlanta School of Medicine	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	220	21	233	20	274	48	727	89	12.2
ILLINOIS.																			
American Medical Miss. Coll	119	13	92	24	88	22	88	21	80	21	80	23	46	10	42	4	635	138	21.7
Bennett Medical College	124	37	104	21	113	18	115	10	103	30	156	52	153	34	150	28	1,018	230	22.6
College of Med. and Surgery	46	9	40	9	76	12	70	11	50	12	40	5	28	2	28	3	378	63	16.7
Coll. of P. and S., Chicago	676	164	692	220	685	216	695	214	654	213	556	210	501	146	463	150	4,922	1,533	31.1
Hahnemann Med. Coll., Chicago	175	51	185	49	195	69	138	49	220	61	178	58	136	42	117	43	1,344	422	31.4
Hering Medical College	60	12	72	13	90	22	92	29	50	14	48	14	80	11	58	16	550	131	23.8
Illinois Medical College	202	36	228	21	265	47	237	58	192	59	192	48	212	40	53	30	1,581	339	21.4
Jenner Medical College	101	13	105	18	107	13	122	24	102	13	250	38	185	19	175	32	1,147	170	14.8
Northwestern University	344	74	465	96	608	127	587	133	593	143	580	125	473	134	533	135	4,183	967	23.1
Rush Medical College	1,055	213	803	211	1,047	220	1,033	160	522	112	450	83	567	83	586	70	6,063	1,152	19.0
National Medical University	144	12	150	11	173	17	234	20	232	23	249	29	250	26	123	.....	1,555	138	9.0
Chicago Coll. of M. and S	.....	.....	36	0	126	10	262	23	292	34	189	23	239	35	325	70	1,469	195	13.3
INDIANA.																			
Indiana Medical College	375	73	427	92	493	103	480	105	458	116	339	122	227	70	197	50	2,996	731	24.4
Physio-Med. of Indiana	34	9	31	4	29	9	32	9	22	5	23	6	25	7	24	5	220	54	24.5
Eclectic Medical Coll. of Indiana	14	0	25	.....	28	5	30	3	45	8	20	6	12	3	12	5	186	30	16.1
Indiana University	.....	.....	.....	.....	.....	.....	18	.....	14	.....	21	.....	109	25	111	24	273	49	17.9
IOWA.																			
Drake University	78	14	64	10	66	11	65	13	60	10	81	10	76	17	75	18	565	103	18.2
Keokuk Med. C. of P. and S	247	51	247	52	243	56	267	47	230	50	170	50	127	30	115	37	1,646	373	22.7
Sioux City College of Medicine	52	5	63	10	72	13	59	12	72	14	72	14	29	10	26	9	445	87	19.6
University of Iowa (H)	59	16	59	7	35	11	35	9	41	9	47	8	44	4	43	9	363	73	20.1
University of Iowa (R)	272	35	248	40	251	35	249	49	277	65	267	51	272	52	266	42	2,102	369	17.6
KANSAS.																			
Kansas Medical College	98	0	99	16	101	12	104	24	91	23	90	18	82	14	69	13	734	120	16.3
University of Kansas	365	100	271	61	288	53	310	65	241	53	162	57	115	29	101	18	1,853	436	23.5
Eclectic Medical University	48	14	49	12	61	15	60	16	56	17	46	16	36	9	41	11	397	110	27.7
KENTUCKY.																			
Kentucky School of Medicine	309	43	295	45	290	56	275	58	193	49	275	48	270	66	270	44	2,177	409	18.8
Louisville-Hospital Med. Coll	530	77	627	94	678	122	669	160	638	133	554	148	436	147	335	102	4,517	983	21.8
Louisville National Med. Coll	21	4	.....	7	26	4	38	4	37	6	50	7	50	13	36	6	258	51	20.0
Southwestern Homeo. Med. Coll	33	11	27	4	22	5	21	6	19	6	16	6	11	1	13	2	162	41	25.3
University of Louisville	361	55	418	49	557	91	580	110	588	151	497	129	456	158	331	100	3,788	843	22.2
LOUISIANA.																			
Flint Medical College	32	2	47	4	42	5	50	5	55	7	54	8	51	9	34	8	365	48	13.2
Tulane University	390	114	36	53	405	82	438	91	469	83	458	102	516	91	535	102	3,572	718	20.1
MAINE.																			
Medical School of Maine	90	40	90	4	100	20	101	22	93	18	82	17	94	16	93	29	743	166	22.3
MARYLAND.																			
Baltimore Medical College	507	97	532	93	410	93	409	77	406	96	441	97	481	97	323	82	3,509	732	20.9
College of P. & S., Baltimore	359	59	305	58	315	76	343	83	298	70	298	65	302	75	253	68	2,473	554	22.4
Johns Hopkins Med. School	209	54	229	123	257	49	276	45	291	53	293	84	264	70	281	63	2,100	546	26.0
Atlantic Medical College	32	10	35	9	26	3	39	13	33	9	18	5	22	11	37	22	242	82	33.6
University of Maryland	332	71	366	76	392	96	340	96	340	83	339	83	311	62	316	73	2,736	646	23.4
Woman's Medical College	31	7	25	4	16	2	24	3	36	2	33	2	34	6	28	11	227	37	15.3
Maryland Medical College	75	29	128	39	204	59	223	104	207	93	124	29	125	29	100	29	1,186	402	33.9
MASSACHUSETTS.																			
Boston University	127	24	125	23	127	36	99	27	83	14	100	23	96	13	102	19	859	179	20.8
College of P. and S., Boston	127	9	131	9	117	19	117	27	168	28	134	20	123	26	162	26	1,079	164	15.2
Harvard University	591	116	496	167	432	114	364	133	307	67	292	69	366	64	298	70	3,146	800	25.4
Tufts Medical College	277	35	335	35	349	35	394	50	385	62	375	73	376	57	371	53	2,862	403	14.1
MICHIGAN.																			
Detroit College of Medicine	224	45	242	48	257	62	260	72	208	54	173	82	158	68	146	30	1,668	461	27.6
Detroit Homeo. Med. College	41	4	45	6	52	14	50	8	44	12	33	15	29	9	22	6	316	74	23.4
University of Michigan (R)	533	75	508	84	455	92	418	101	376	61	369	70	371	52	390	72	3,450	607	17.6
University of Michigan (H)	67	16	55	8	76	13	69	21	66	12	82	17	82	15	82	15	579	117	20.2
MINNESOTA.																			
University of Minnesota (R)	323	60	362	61	315	70	266	68	228	71	189	42	188	37	166	32	2,037	442	21.7
University of Minnesota (H)	26	4	21	3	18	6	18	4	16	4	15	1	14	6	6	3	134	31	23.1
Hamline University	131	25	139	34	123	34	86	16	123	10	120	27	109	18	126	34	957	198	20.7

COLLEGES.	1901		1902		1903		1904		1905		1906		1907		1908		Totals.		
	Students.	Graduates.	Students.	Graduates.	Students.	Graduates.	Students.	Graduates.	Students.	Graduates.	Students.	Graduates.	Students.	Graduates.	Students.	Graduates.	Students.	Graduates.	Percentage of Grads.
MISSOURI.																			
Univ. Med. Coll., Kansas City	246	69	225	27	222	63	234	67	220	58	235	54	238	57	192	64	1,812	459	25.3
Kansas City Hahnemann M. C.	.....	.....	72	10	71	17	52	17	32	10	76	21	74	11	62	15	439	101	23.0
Ensworth Medical College	63	8	80	14	110	14	94	19	90	22	149	34	117	26	91	25	794	162	20.4
Barnes Medical College	520	111	501	78	495	100	485	125	427	109	385	72	352	79	323	78	3,488	752	21.3
St. Louis University	366	87	488	55	391	88	407	93	385	103	295	115	268	56	241	68	2,841	665	23.4
Coll. of P. and S., St. Louis	243	52	280	50	270	62	250	47	275	29	278	53	270	44	164	49	2,030	385	19.0
American Medical College	75	16	69	14	78	18	76	12	66	16	63	22	38	9	41	8	506	115	22.7
Homeopathic College of Missouri	66	11	67	12	66	13	57	10	45	7	46	4	44	11	27	9	418	77	18.4
Washington University	227	54	242	43	281	53	279	63	254	62	239	55	215	50	208	59	1,945	439	22.6
University of Missouri	85	11	90	.....	98	12	83	10	108	8	98	8	66	2	65	8	693	59	8.5
NEBRASKA.																			
University of Nebraska	149	23	153	38	138	38	150	30	92	28	142	7	82	16	98	24	1,004	204	20.3
Creighton Medical College	123	27	151	37	142	29	153	27	167	33	172	39	167	35	158	41	1,233	268	21.7
Lincoln Medical College	74	12	98	21	86	16	83	22	81	15	71	15	50	12	50	18	593	131	22.1
NEW HAMPSHIRE.																			
Dartmouth Medical College	89	27	72	15	65	14	68	13	60	12	59	10	62	11	58	9	533	111	20.8
NEW YORK.																			
Albany Medical College	142	28	154	26	165	33	173	41	172	52	165	33	195	40	180	40	1,346	293	21.8
Coll. of P. and S., New York	801	149	778	145	795	168	691	174	568	185	450	152	387	93	322	81	4,792	1,147	23.9
Cornell University	356	26	415	53	394	60	360	55	392	74	379	59	342	72	316	58	2,954	457	15.5
Eclectic Med. Coll., New York	84	12	100	7	104	13	95	8	99	13	105	15	83	11	56	7	726	86	11.8
Long Island College Hospital	187	41	245	31	290	40	389	47	414	73	343	72	342	87	337	89	2,547	480	18.9
New York Homeo. Med. Coll.	107	27	106	23	111	29	118	28	110	21	110	30	109	22	80	18	851	198	23.3
N. Y. Woman's Med. Coll.	33	9	36	6	34	8	33	5	34	9	20	6	24	4	20	3	234	50	21.4
University and Bellevue M. C.	285	43	319	48	311	73	342	61	391	47	481	53	502	68	503	88	3,134	481	15.3
Syracuse University	116	19	128	19	140	29	131	31	154	31	153	23	153	24	150	43	1,125	219	19.5
University of Buffalo	212	46	239	38	237	45	243	54	231	37	225	44	214	59	176	37	1,777	360	20.3
NORTH CAROLINA.																			
Leonard Medical College	8	1	106	21	113	23	125	21	136	21	147	33	149	24	146	43	930	187	20.1
North Carolina Med. College	42	8	55	18	67	10	84	17	81	26	92	24	69	14	82	6	572	123	21.5
University of North Carolina	.....	.....	62	.....	83	4	72	4	100	9	96	11	114	10	114	12	641	50	7.8
OHIO.																			
Western Reserve University	133	24	123	36	97	26	88	31	73	19	85	12	87	10	104	30	793	188	23.7
Cleveland Coll. of P. and S.	78	15	86	30	86	22	75	19	84	16	88	22	92	13	90	20	679	157	23.1
Cleveland Homeo. Med. Coll.	150	46	112	23	115	40	85	25	66	24	50	14	43	10	43	10	664	192	29.0
Eclectic Medical Institute	141	26	142	36	146	45	142	27	135	37	116	35	97	31	91	23	1,010	260	25.7
Medical College of Ohio	200	60	180	47	170	54	145	46	121	33	137	33	133	35	117	26	1,203	334	27.8
Pulte Medical College	39	5	40	10	30	10	22	7	18	5	13	3	15	5	15	1	192	46	24.0
Miami Medical College	112	25	97	31	106	40	103	27	85	22	78	24	75	15	70	16	726	201	27.7
Starling-Ohio Medical College	401	77	394	93	377	107	292	74	163	67	228	72	197	39	209	30	2,261	559	24.7
Toledo Medical College	55	8	52	10	41	14	33	7	33	7	20	9	20	8	29	3	283	66	23.3
OREGON.																			
University of Oregon	64	11	80	20	88	10	96	16	102	26	82	16	86	20	88	20	686	139	20.3
Willamette University	27	5	27	5	40	7	42	8	50	7	50	15	45	16	35	10	316	73	23.1
PENNSYLVANIA.																			
Temple College	.....	.....	35	0	70	0	63	2	87	2	101	14	90	16	134	8	580	42	7.2
University of Pennsylvania	565	160	542	151	469	111	472	96	546	116	577	103	588	114	604	118	4,363	969	22.2
Hahn. M. C. of Philadelphia	264	52	269	58	233	69	201	66	164	44	186	52	188	48	168	37	1,673	426	25.4
Jefferson Medical College	736	103	724	140	771	166	732	165	676	179	617	200	629	126	693	136	5,578	1,208	21.7
Woman's M. C., Pennsylvania	175	37	157	28	165	30	159	43	151	42	136	25	152	29	138	32	1,233	266	21.6
Medico-Chirurgical Coll., Pa.	408	67	447	23	431	93	414	70	461	86	467	84	434	75	419	66	3,481	564	16.2
Western Pennsylvania M. C.	338	73	327	57	317	79	259	51	281	53	307	46	346	48	362	53	2,537	460	18.1
SOUTH CAROLINA.																			
Med. Coll. of South Carolina	95	32	89	4	95	21	91	23	87	28	99	6	130	21	153	17	839	152	18.1
TENNESSEE.																			
Tennessee Medical College	97	35	79	23	62	8	86	10	92	13	82	19	80	16	83	17	661	141	21.3
Knoxville Medical College	34	4	37	3	23	6	30	8	47	6	45	4	32	1	23	4	271	36	13.3
University of Nashville	182	66	257	34	317	50	301	41	317	75	298	42	414	86	302	67	2,388	461	19.3
Vanderbilt University	211	92	160	16	162	34	168	34	158	35	197	36	215	42	207	40	1,478	329	22.2
University of Tennessee	182	75	162	18	150	33	154	30	161	44	182	25	167	41	137	40	1,298	306	23.6
Meharry Medical College	217	39	233	55	252	41	287	57	328	59	321	68	300	73	285	78	2,223	470	21.1
Memphis Hosp. Med. Coll.	750	189	687	171	675	195	566	153	476	51	492	82	388	66	386	83	4,420	990	22.4
University of the South	209	102	227	81	203	38	148	24	132	36	119	28	150	39	99	31	1,287	379	29.4
Chattanooga Medical College	224	54	252	41	264	41	252	37	268	39	267	33	249	36	262	25	2,038	306	15.0
University of West Tennessee	.....	.....	.....	.....	17	0	27	3	33	6	40	4	23	3	35	9	175	25	14.3
TEXAS.																			
Fort Worth University	157	27	141	17	108	5	106	9	191	21	192	24	176	19	108	9	1,179	131	11.1
University of Texas	119	6	167	13	179	35	172	23	168	23	189	31	188	27	198	25	1,380	183	13.3
Baylor University	81	15	98	19	66	3	68	14	132	36	70	8	57	6	62	11	634	112	16.9
Physio-Medical College of Texas	.....	.....	20	3	20	3	21	0	42	5	47	11	44	2	38	4	232	28	12.1
Southwestern University	.....	.....	.....	.....	.....	.....	38	11	48	14	85	4	68	9	63	9	302	47	15.5
Coll. of P. and S., Dallas	.....	.....	.....	.....	.....	.....	72	14	72	14	95	18	103	23	.....	.....	342	69	20.2
VERMONT.																			
University of Vermont	155	15	210	32	246	31	225	55	185	48	170	47	165	34	142	33	1,498	295	19.7
VIRGINIA.																			
Medical College of Virginia	203	47	212	13	219	35	219	41	209	38	242	45	212	29	215	38	1,731	286	15.5
Univ. College of Medicine	224	72	194	8	187	44	188	25	223	48	205	20	182	43	158	43	1,561	303	19.4
University of Virginia	173	53	211	53	151	25	164	31	145	41	122	21	134	31	106	24	1,206	279	23.1
WISCONSIN.																			
Milwaukee Medical College	178	36	184	28	184	43	148	22	174	38	139	15	130	27	147	43	1,284	252	19.6
Coll. of P. and S., Wisconsin	123	18	125	19	102	23	86	29	74	19	86	15	62	21	58	9	716	153	21.3
Miscellaneous Colleges	1,258	264	1,532	91	1,097	222	2,076	189	1,023	155	838	98	880	159	727	72	9,431	1,250	13.3
Total Students		26,417		27,501		27,615		28,142		26,147		25,204		24,276		22,602		207,904	
Total Graduates		5,444		4,999		5,698		5,747		5,606		5,364		4,980		4,741		42,579	
Percentage of Graduates		20.6		18.2		20.6		20.4		21.1		21.3		20.5		21.0		20.4	

I. COLLEGES NOW EXISTING.

The dates here given refer to the colleges as they exist under their present titles. Some were organized originally under other names, to which reference is made in the fourth column.

Number.	NAME AND LOCATION OF COLLEGE.	Year Organized.	First Class Graduated.	Years When No Classes Graduated.	Previous Titles.	Dean, or Secretary.	1908-9 Session. Begins. 1908.	1908-9 Session. Ends. 1909.	Number.
	ALABAMA.								
1	Birmingham Medical College, Birmingham	1894	1895			B. L. Wyman, M.D.	Oct. 5	April 19	1
2	Medical Department of the University of Alabama, Mobile	1907	1908		See II-2	Rhett Goode, M.D.	Oct. 1	May 1	2
	ARKANSAS.								
3	College of Physicians and Surgeons, Little Rock	1906	1907			J. P. Runyan, M.D.	Oct. 1	April 30	3
4	University of Arkansas, Medical Department, Little Rock	1899	1900		See II-5	James H. Lenow, M.D.	Oct. 1	May 1	4
	CALIFORNIA.								
5	California Eclectic Medical College, Los Angeles	1907	1908		See II-9	J. A. Munk, M.D.	Sept. 14	May 24	5
6	College of Physicians and Surgeons, Los Angeles	1903	1905			Charles W. Bryson, M.D.	Sept. 26	June 23	6
7	College of Physicians and Surgeons, San Francisco	1896	1897			D. A. Hodghead, M.D.	Sept. 14	May 1	7
8	Cooper Medical College, San Francisco	1882	1883		See II-15	Henry Gibbons, Jr., M.D.	Aug. 15	May 6	8
9	Hahnemann Medical College of the Pacific, Homeopathic, San Francisco	1902	1903		See II-11	James W. Ward, M.D.	Sept. 9	May 27	9
10	Oakland College of Medicine and Surgery, Oakland	1900	1906			Edward N. Ewer, M.D.	Aug. 17	May 17	10
11	University of California Medical Department, San Francisco	1872	1873		See II-14	A. A. D'Ancona, M.D.	Aug. 17	May 12	11
12	University of Southern California, College of Medicine, Los Angeles	1885	1888			W. Jarvis Barlow, M.D.	Oct. 1	June 11	12
	COLORADO.								
13	Denver and Gross College of Medicine, Denver	1902	1902		See II-18	Walter A. Jayne, M.D.	Sept. 8	May 13	13
14	Denver College of Physicians and Surgeons, Denver	1908	1908		See II-21	Joseph B. Kinley, M.D.	Sept. 7	May 13	14
15	University of Colorado, Medical Department, (Colorado School of Medicine), Boulder	1883	1885	1898-1899		William P. Harlow, M.D.	Sept. 14	June 4	15
	CONNECTICUT.								
16	Yale Medical School, New Haven	1884	.....		See II-22	Herbert E. Smith, M.D.	Sept. 24	June 25	16
	DISTRICT OF COLUMBIA.								
17	George Washington University Department of Medicine, Washington	1904	1905		See II-23	W. F. R. Phillips, M.D.	Sept. 30	June 9	17
18	Georgetown University School of Medicine, Washington	1851	1852			George M. Kober, M.D.	Sept. 27	June 11	18
19	Howard University Medical Department, Washington	1868	1871			Robert Reyburn, M.D.	Oct. 1	May 28	19
	GEORGIA.								
20	Atlanta College of Physicians and Surgeons, Atlanta	1898	1899		See II-39	W. S. Elkin, M.D.	Sept. 28	May 1	20
21	Atlanta School of Medicine, Atlanta	1905	1906			George H. Noble, M.D.	Sept. 25	April 23	21
22	Georgia College of Eclectic Medicine and Surgery, Atlanta	1886	1887			Elzie B. Thomas, M.D.	Oct. 1	April 1	22
23	Medical College of Georgia, Augusta	1829	1833	1864		Joseph Eve Allen, M.D.	Oct. 1	May 1	23
	ILLINOIS.								
24	American Medical Missionary College, Battle Creek, Mich., and Chicago	1895	1899			J. H. Kellogg, M.D.	Sept. 15	June 15	24
25	Bennett College of Eclectic Medicine and Surgery, Chicago	1868	1870			John D. Robertson, M.D.	Sept. 22	May 24	25
26	Chicago College of Medicine and Surgery, Chicago, (No. 2)[1]	1907	1908		See II-44	Henry S. Tucker, M.D.	Sept. 29	May 18	26
27	College of Medicine and Surgery, Physio-Medical, Chicago	1899	1900		See II-53	N. LaDoit Johnson, M.D.	Sept. 23	May 15	27
28	College of Physicians and Surgeons, Chicago	1882	1883			William E. Quine, M.D.	Sept. 28	June 8	28
29	Hahnemann Medical College and Hospital of Chicago	1859	1861			W. Henry Wilson, M.D.	Sept. 21	May 15	29
30	Hering Medical College, Chicago	1892	1893			H. C. Allen, M.D.	Sept. 30	May 30	30
31	Illinois Medical College, Chicago	1894	1895			B. B. Eads, M.D.	Sept. 2	April 29	31
32	Jenner Medical College, Chicago[2]	1892	1896			John MacKellar, M.D.	Sept. 1	June 25	32
33	National Medical University, Chicago[2]	1900	1900		See II-76	L. D. Rogers, M.D.	.....	.....	33
34	Northwestern University Medical School, Chicago	1891	1892		See II-51	Charles L. Mix, M.D.	Oct. 6	June 15	34
35	Reliance Medical College, Chicago[2]	1907	.....			J. F. Burkholder, M.D.	Sept. 3	June 27	35
36	Rush Medical College, Chicago	1843	1844			John M. Dodson, M.D.	Oct. 1	June 11	36
	INDIANA.								
37	Indiana University School of Medicine, Bloomington and Indianapolis	1890	1908			B. D. Myers, M.D.	Sept. 22	June 25	37
38	Physio-Medical College of Indiana, Indianapolis	1873	1874			C. T. Bedford, M.D.	Sept. 8	May 4	38
	IOWA.								
39	Drake University College of Medicine, Des Moines	1903	1904		See II-110	D. S. Fairchild, M.D.	Sept. 14	June 16	39
40	Keokuk Medical College, College of Physicians and Surgeons, Keokuk	1899	1900		See II-109	G. F. Jenkins, M.D.	Sept. 15	May 25	40
41	Sioux City College of Medicine, Sioux City	1890	1893			F. E. Franchere, M. D.	Sept. 17	June 7	41
42	State University of Iowa, College of Medicine, Iowa City	1869	1871			James R. Guthrie, M.D.	Sept. 16	June 16	42
43	State University of Iowa, College of Homeopathic Medicine, Iowa City	1877	1878			George Royal, M.D.	Sept. 16	June 16	43
	KANSAS.								
44	Kansas Medical College, Topeka	1890	1892			Wm. S. Lindsey, M.D.	Sept. 8	April 28	44
45	University of Kansas, School of Medicine, Kansas City and Lawrence	1880	1906			George H. Hoxie, M.D.	Sept. 16	June 9	45
46	Western Eclectic College of Medicine and Surgery, Kansas City	1908	.....		See II-117	Theodore Doyle, M.D.	Sept. 7	April 30	46
	KENTUCKY.								
47	Louisville National Medical College (Colored), Louisville	1888	1889			E. S. Porter, M.D.	Oct. 6	May 21	47
48	Southwestern Homeopathic College, Louisville	1892	1894			G. S. Coon, M.D.	Oct. 6	May 19	48
49	University of Louisville, Medical Department, Louisville	1846	1847	1863	See II-128	T. C. Evans, M.D.	Nov. 1	May 31	49

For footnotes to this table see page 602.

Number.	NAME AND LOCATION OF COLLEGE.	Year Organized.	First Class Graduated.	Years When No Classes Graduated.	Previous Titles.	Dean, or Secretary.	1908-9 Session. Begins. 1908.	1908-9 Session. Ends. 1909.	Number.
	LOUISIANA.								
50	Flint Medical College of New Orleans University. New Orleans	1902	1903	.....	See II-132.	A. D. Bush, M.D.....	Sept. 28	May 5	50
51	Medical Department of the Tulane University of Louisiana, New Orleans	1884	1885	.....	See II-133.	Isadore Dyer, M.D.....	Oct. 1	May 19	51
	MAINE.								
52	Medical School of Maine, Brunswick	1820	1820	.....	.....	Alfred Mitchell, M.D.....	Oct. 22	June 23	52
	MARYLAND.								
53	Atlantic Medical College, Baltimore	1907	1908	.....	See II-142.	Eldridge C. Price, M.D....	Oct. 1	June 3	53
54	Baltimore Medical College, Baltimore	1881	1882	.....	.....	David Streett, M.D.....	Sept. 21	May 21	54
55	College of Physicians and Surgeons, Baltimore	1872	1873	.....	.....	Charles F. Bevan, M.D....	Oct. 1	June 1	55
56	Johns Hopkins Medical School, Baltimore	1887	1907	.....	.....	William H. Howell, M.D..	Oct. 6	June 14	56
57	Maryland Medical College, Baltimore	1898	1899	.....	.....	Harry Gross, M.D.....	Oct. 1	June 1	57
58	University of Maryland School of Medicine, Baltimore	1812	1813	.....	See II-139.	R. Dorsey Coale, M.D.....	Oct. 1	June 1	58
59	Woman's Medical College of Baltimore, Baltimore	1882	1883	.....	.....	J. R. Abercrombie, M.D.	Oct. 1	May 31	59
	MASSACHUSETTS.								
60	Boston University, School of Medicine, Boston	1873	1874	.....	.....	John P. Sutherland, M.D.	Oct. 1	June 2	60
61	College of Physicians and Surgeons, Boston	1880	1882	.....	.....	C. H. Cobb, M.D.....	Sept. 18	June 20	61
62	Harvard Medical School, Boston	1782	1788	.....	.....	William L. Richardson....	Oct. 1	June 30	62
63	Tufts College Medical School, Boston	1893	1894	.....	.....	F. M. Briggs, M.D.....	Sept. 30	May 26	63
	MICHIGAN.								
64	Detroit College of Medicine, Detroit	1885	1886	.....	See II-155.	F. B. Walker, M.D.....	Sept. 16	May 27	64
65	Detroit Homeopathic College, Detroit	1899	1900	.....	.....	D. A. MacLachlan, M.D..	Sept. 15	May 15	65
66	University of Michigan, Department of Medicine and Surgery, Ann Arbor	1850	1851	.....	.....	Victor C. Vaughan, M.D..	Sept. 29	June 24	66
67	University of Michigan, Homeopathic College, Ann Arbor	1875	1877	.....	.....	W. B. Hinsdale, M. D.....	Sept. 29	June 24	67
	MINNESOTA.								
68	University of Minnesota, College of Medicine and Surgery, Minneapolis	1883	1889	.....	.....	F. F. Wesbrook, M.D.....	Sept. 15	June 5	68
69	University of Minnesota, College of Homeopathic Medicine and Surgery, Minneapolis	1888	1889	.....	See II-167.	Eugene L. Mann, M.D....	Sept. 15	June 5	69
	MISSISSIPPI.								
70	Mississippi Medical College, Meridian	1906	1907	.....	.....	T. A. Barber, M.D.....	Oct. 1	May 1	70
71	University of Mississippi, Medical Department, Oxford	1903	.....	.....	.....	W. S. Leathers, M.D.....	Sept. 8	June 8	71
	MISSOURI.								
72	American Medical College, St. Louis[3]	1873	1874	.....	.....	P. C. Clayberg, M.D.....	Sept. 16	April 21	72
73	Barnes Medical College, St. Louis[4]	1892	1893	1899	.....	C. M. Ament, M.D.....	Sept. 7	May 1	73
74	Ensworth Medical College, St. Joseph[5]	1888	1889	1906-1907	See II-173.	T. E. Potter, M.D.....	Sept. 7	May 1	74
75	Hippocratean College of Medicine, St. Louis[4]	1907	.....	.....	.....	Emory Lanphear, M.D....	Sept. 7	June 19	75
76	Homeopathic Medical College of Missouri, St. Louis	1859	1860	1862-1864	.....	L. C. McElwee, M.D.....	Sept. 8	April 23	76
77	Kansas City Hahnemann Medical College, Kansas City	1902	1903	.....	.....	Frank Elliott, M.D.....	Sept. 8	May 8	77
78	St. Louis University School of Medicine, St. Louis	1903	1904	.....	See II-191.	E. P. Lyon, M.D.....	Oct. 1	May 22	78
79	St. Louis College of Physicians and Surgeons	1869	1870	1874-1879	.....	Waldo Briggs, M.D.....	Sept. 12	May 1	79
80	University of Missouri, Medical Department, Columbia[6]	1845	1846	Note 6	See II-190.	A. W. McAlester, M.D....	Sept. 14	June 2	80
81	University Medical College, Kansas City	1888	1889	.....	See II-210.	J. E. Logan, M.D.....	Sept. 6	May 15	81
82	Washington University Medical Department, St. Louis	1891	1892	.....	See II-207.	Wm. H. Warren, Ph.D....	Sept. 28	May 26	82
	NEBRASKA.								
83	John A. Creighton Medical College, Omaha	1892	1895	.....	.....	D. C. Bryant, M.D.....	Sept. 1	May 1	83
84	Lincoln Medical College (Eclectic), Lincoln	1890	1891	.....	.....	F. L. Wilmeth, M.D.....	Sept. 7	June 7	84
85	Nebraska College of Medicine, Lincoln	1905	1907	.....	.....	James F. Stevens, M.D....	Sept. 14	June 9	85
86	University of Nebraska, College of Medicine, Lincoln and Omaha	1902	1903	.....	See II-216.	Henry B. Ward, Ph.D.....	Sept. 16	May 20	86
	NEW HAMPSHIRE.								
87	Dartmouth Medical School, Hanover	1797	1798	.....	.....	William T. Smith, M.D...	Aug. 4	March 26	87
	NEW YORK.								
88	Albany Medical College, Albany	1838	1839	.....	.....	Samuel B. Ward, M.D....	Sept. 23	May 18	88
89	College of Physicians and Surgeons in the City of New York	1807	1811	.....	See II-237.	Saml. W. Lambert, M.D..	Sept. 23	May 26	89
90	Cornell University Medical College, Ithaca and New York City	1898	1899	.....	.....	William M. Polk, M.D....	Sept. 30	June 9	90
91	Eclectic Medical College of the City of New York. York City	1866	1867	.....	.....	Geo. W. Boskowitz, M.D.	Sept. 15	May 15	91
	York City	1905	.....						
92		1905	.....	.....	.....	James J. Walsh, M.D.....	Sept. 24	May 20	92
93	Long Island College Hospital, Brooklyn	1858	1859	.....	.....	John D. Rushmore, M.D..	Sept. 28	May 14	93
94	New York Homeopathic Medical College and Hospital, New York City	1887	1888	.....	See II-255.	J. W. Dowling, M.D.....	Oct. 6	May 12	94
95	New York Medical College and Hospital for Women (Homeopathic), New York City	1866	1867	.....	See II-259.	Helen C. Palmer, M.D.....	Oct. 1	May 14	95
96	Syracuse University, College of Medicine, Syracuse	1875	1876	.....	See II-235.	John L. Heffron, M.D.....	Oct. 6	June 10	96
97	University and Bellevue Hospital Medical College, New York City	1898	1899	.....	See II-229.	Egbert LeFevre, M.D.....	Sept. 30	June 2	97
98	University of Buffalo Medical Department, Buffalo	1846	1847	.....	.....	Matthew D. Mann, M.D...	Sept. 28	May 28	98
	NORTH CAROLINA.								
99	Leonard School of Medicine (Colored), Raleigh	1882	1886	1887	.....	James McKee, M.D.....	Oct. 1	May 13	99
100	North Carolina Medical College, Charlotte	1893	1893	.....	See II-275	W. O. Nisbet, M.D.....	Sept. 9	April 20	100
101	University of North Carolina, Medical Department, Chapel Hill and Raleigh	1890	1903	.....	.....	H. A. Royster, M.D.....	Sept. 7	May 29	101
102	Wake Forest School of Medicine, Wake Forest[7]	1902	.....	.....	.....	Watson S. Rankin, M.D..	Sept. 1	May 25	102
	NORTH DAKOTA.								
103	Medical College of the State University of North Dakota, University[7]	1905	.....	.....	.....	M. A. Brannon, A.M.....	Sept. 22	June 17	103

For footnotes to this table see page 602.

Number.	NAME AND LOCATION OF COLLEGE.	Year Organized.	First Class Graduated.	Years When No Classes Graduated.	Previous Titles.	Dean, or Secretary.	1908-9 Session. Begins. 1908.	Ends. 1909.	Number.
	OHIO.								
104	Cleveland College of Physicians and Surgeons, Cleveland	1896	1897		See II-281.	R. E. Skeel, M.D.	Oct. 1	May 20	104
105	Cleveland Homeopathic Medical College, Cleveland	1898	1898		See II-308.	George H. Quay, M.D.	Sept. 23	May 14	105
106	Eclectic Medical Institute, Cincinnati	1845	1846		See II-312.	R. L. Thomas, M.D.	Sept. 14	April 28	106
107	Medical College of Ohio, Cincinnati[8]	1819	1821			Fred. Forchheimer, M.D.	Oct. 1	June 5	107
108	Miami Medical College, Cincinnati[8]	1852	1853	1858-1865		J. C. Oliver, M.D.	Oct. 1	June 5	108
109	Pulte Medical College, Cincinnati	1872	1873			Charles E. Walton, M.D.	Sept. 30	May 25	109
110	Starling-Ohio Medical College, Columbus	1907	1908		See II-305.	George M. Waters, M.D.	Sept. 23	May 18	110
111	Toledo Medical College, Toledo	1883	1883			James Donnelly, M.D.	Oct. 1	June 1	111
112	Western Reserve University, Medical Department, Cleveland	1881	1882		See II-285.	B. L. Millikin, M.D.	Oct. 1	June 17	112
	OKLAHOMA.								
113	College of Medicine of Epworth University, Oklahoma City	1904	1907			A. K. West, M.D.	Oct. 2	May 10	113
114	State University of Oklahoma, School of Medicine, Norman	1903				C. S. Bobo, M.D.	Sept. 15	June 10	114
	OREGON.								
115	Medical Department Willamette University, Salem[9]	1865	1867	1896		W. H. Byrd, M.D.	Oct. 5	May 15	115
116	University of Oregon Medical Department, Portland	1887	1888			S. E. Josephi, M.D.	Sept. 14	May 2	116
	PENNSYLVANIA.								
117	Hahnemann Medical College and Hospital, Philadelphia	1869	1870		See II-323.	Herb't L. Northrop, M.D.	Sept. 21	June 2	117
118	Jefferson Medical College, Philadelphia	1838	1839		See II-326.	James W. Holland, M.D.	Sept. 24	June 8	118
119	Medico-Chirurgical College of Philadelphia	1881	1882			Seneca Egbert, M.D.	Sept. 23	June 5	119
120	Temple College, Medical Department, Philadelphia	1901	1904			I. Newton Snively, M.D.	Sept. 14	June 15	120
121	University of Pennsylvania, Department of Medicine, Philadelphia	1782	1783		See II-318.	Charles H. Frazier, M.D.	Sept. 25	June 16	121
122	Western Pennsylvania Medical College, Pittsburg	1886	1887			J. Chris Lange, M.D.	Oct. 1	June 15	122
123	Woman's Medical College of Pennsylvania, Philadelphia	1850	1851	1861, 1862		Clara Marshall, M.D.	Sept. 23	May 26	123
	PHILIPPINE ISLANDS.								
124	Philippine Medical School, Manila	1907				Harry T. Marshall, M.D.			124
125	University of St. Thomas, Medical Department, Manila	1771				Lic. Blas C. Alcuaz			125
	SOUTH CAROLINA.								
126	Medical College of the State of South Carolina, Charleston	1832	1833	1861-1865	See II-335.	Allard Memminger, M.D.	Oct. 1	April 10	126
	SOUTH DAKOTA.								
127	University of South Dakota, College of Medicine, Vermilion[7]	1907				Christ. P. Lommen, B.S.	Sept. 14	June 10	127
	TENNESSEE.								
128	Chattanooga Medical College, Chattanooga	1889	1890			J. R. Rathmell, M.D.	Sept. 23	April 26	128
129	College of Physicians and Surgeons, Memphis	1906	1907			Heber Jones, M.D.	Oct. 1	May 1	129
130	Knoxville Medical College (Colored), Knoxville	1900	1900	1907	See II-342.	H. M. Green, M.D.			130
131	Memphis Hospital Medical College, Memphis	1880	1881			W. B. Rogers, M.D.	Oct. 1	April 30	131
132	Meharry Medical College (Colored), Nashville	1876	1877			G. W. Hubbard, M.D.	Sept. 9	April 6	132
133	Tennessee Medical College, Knoxville	1889	1890			S. L. Jones, M.D.	Oct. 1	May 1	133
134	University of Nashville, Medical Department, Nashville[10]	1850	1852			William G. Ewing, M.D.	Sept. 15	April 30	134
135	University of Tennessee, Department of Medicine, Nashville	1879	1880		See II-344.	Hilliard Wood, M.D.	Apr. 1	Oct. 31,'08	135
136	University of the South, Medical Department (Sewanee Medical College), Sewanee	1892	1893			John S. Cain, M.D.	Sept. 15	May 1	135
137	University of West Tennessee, Medical Department (Colored), Memphis	1900	1904			M. V. Lynk, M.D.	Sept. 14	April 14	137
138	Vanderbilt University, Medical Department, Nashville[10]	1874	1875			William L. Dudley, M.D.	Sept. 16	May 1	138
	TEXAS.								
139	Baylor University College of Medicine, Dallas	1903	1904		See II-353.	Edward H. Cary, M.D.	Oct. 1	May 1	139
140	College of Physicians and Surgeons, Dallas[11]	1905	1905		See II-346.	Arthur C. Bell, M.D.			140
141	Medical Department of Fort Worth University, Fort Worth	1894	1895			W. R. Thompson, M.D.	Oct. 6	May 6	141
142	Southwestern University Medical College, Dallas	1903	1904			Jno. O. McReynolds, M.D.	Oct. 1	April 30	142
143	University of Texas, Department of Medicine, Galveston	1891	1892			William S. Carter, M.D.	Oct. 1	May 29	143
	UTAH.								
144	University of Utah, Department of Medicine, Salt Lake City[7]	1906				Byron Cummings, A.M.	Sept. 14	June 2	144
	VERMONT.								
145	University of Vermont, College of Medicine, Burlington	1822	1823	1837-1853		Henry C. Finkham, M.D.	Nov. 11	June 24	145
	VIRGINIA.								
146	Medical College of Virginia, Richmond	1858	1859		See II-365.	Chris. Tompkins, M.D.	Sept. 15	May 19	146
147	University of Virginia Department of Medicine, Charlottesville	1825	1828	1865		R. H. Whitehead, M.D.	Sept. 10	June 16	147
148	University College of Medicine, Richmond	1894	1894		See II-364.	Paulus A. Irving, M.D.	Sept. 15	May 18	148
	WEST VIRGINIA.								
149	West Virginia University College of Medicine, Morgantown[7]	1902				J. N. Simpson, M.D.	Sept. 21	June 15	149
	WISCONSIN.								
150	Marquette University, Medical Department (Milwaukee Medical College), Milwaukee	1894	1895			Warren B. Hill, M.D.	Oct. 1	June 1	150
151	University of Wisconsin College of Medicine, Madison[7]	1907				Charles R. Bardeen, M.D.	Oct. 1	June 18	151
152	Wisconsin College of Physicians and Surgeons, Milwaukee	1893	1894			J. C. Phillips, M.D.	Sept. 29	May 27	152

For footnotes to this table see page 602.

II. COLLEGES EXTINCT, OR NO LONGER EXISTING UNDER NAME GIVEN.

Number.	NAME AND LOCATION OF COLLEGE.	Year Organized.	First Class Graduated.	Years When No Classes Graduated.	Last Class Graduated.	Year of Termination.	Remarks.	Number.
	ALABAMA.							
1	Graffenberg Institute, Dadeville	1852	.....	.....	.....	1862	Extinct. Charter expired	1
2	Medical College of Alabama, Mobile	1859	1861	1862–1868	1907	1907	New title. See I-2	2
3	Medical College of Montezuma University, Bessemer	1896	1897	.....	1898	1898	Extinct	3
4	Southern University, Medical Department, Greensboro	1872	.....	.....	1880	1880	Extinct	4
	ARKANSAS.							
5	Arkansas Industrial University, Medical Department Little Rock	1879	1880	.....	1899	1899	New title. See I-4	5
6	Bethel Medical Department of Southwestern University, Little Rock	.....	.....	.....	.....	1890*	Extinct (a)	6
7	Sulphur Rock College, Medical Department of Sulphur Rock	1898	.....	.....	.....	1902	New charter. No grads. See II-349	7
8	Texas Health College, Hot Springs	1893	.....	.....	.....	.....	Extinct. Fraudulent (b)	8
	CALIFORNIA.							
9	California Medical College	1879	1880	.....	1906	1906	New title. See I-5	9
10	California Medical Society and College of Physicians	1876	.....	.....	.....	1877	Extinct.	10
11	Hahnemann Hospital College of San Francisco, San Francisco	1888	.....	.....	1902	1902	New title. See I-9	11
12	Hahnemann Medical College, San Francisco	1883	1884	.....	.....	1888	New title. See II-11	12
13	Pacific Coast Regular College of Medicine, San Francisco	1900	.....	.....	.....	1900	New title. See II-17. Fraudulent	13
14	Toland Medical College, San Francisco	1863	1865	.....	1872	1872	New title. See I-11	14
15	University College of San Francisco, Medical Department	1873	.....	.....	.....	1882	New title. See I-8	15
16	University of the Pacific, Medical Department, San Francisco	1858	1859	1865–1869	.....	1873	New title. See II-15	16
17	West Coast Medical College, San Francisco	1900	.....	.....	.....	1900	Extinct. No graduates (c)	17
	COLORADO.							
18	Denver College of Medicine, Denver	1881	1882	.....	1901	1902	Merged with II-20 to form I-13	18
19	Denver Homeopathic College, Denver	1894	1895	.....	1906	1907	New title. See II-21	19
20	Gross Medical College, Denver	1887	1888	.....	1901	1902	Merged with II-18 to form I-13	20
21	Westminster University College of Medicine	1907	1907	.....	1907	1908	New title. See I-14	21
	CONNECTICUT.							
22	Medical Institution of Yale College	1813	1814	.....	.....	1879	New title. See I-16	22
	DISTRICT OF COLUMBIA.							
23	Columbian University Medical Department, Washington	1873	1874	.....	1904	1904	New title. See I-17	23
24	National Homeopathic Medical College, Washington	1893	1894	.....	1895	1896	New title. See II-27	24
25	National Medical College, Washington	1825	1826	1834–1838 1861–1863	1873	1873	New title. See II-23	25
26	National University Medical Department, Washington	1884	1885	.....	1903	1903	Merged into II-23	26
27	Washington Homeopathic Medical College, Washington	1896	1896	.....	1896	1896	Extinct. Ten graduates	27
	FLORIDA.							
28	University of Florida Medical Department, Tallahassee, Jacksonville	1883	.....	.....	.....	1886	Extinct	28
	GEORGIA.							
29	Atlanta Medical College, Atlanta	1855	1856	1861–1865	1898	1898	Merged with II-41 to form I-20	29
30	Clark University, Medical Department, Atlanta	1886	.....	.....	.....	1886	Extinct. No classes graduated	30
31	College of American Medicine and Surgery, Forsyth-Macon-Atlanta	1874	1874	1877–1881	1883	1884	Merged into II-33	31
32	Dalton Medical College, Dalton	1886	.....	.....	.....	.....	Extinct (a)	32
33	Georgia Eclectic Medical College, Atlanta	1877	1877	.....	1886	1886	New title. See I-22	33
34	International Medical Missionary College and Training School for Nurses, Atlanta	1904	1906	.....	1908	1908	Suspended	34
35	Medical Academy of Georgia, Augusta	1828	.....	.....	.....	1829	New title. No graduates. See I-23	35
36	Middle Georgia Medical College, Griffin	1859	.....	.....	.....	.....	Extinct (a)	36
37	Oglethorpe Medical College, Savannah	1855	.....	.....	.....	1861	Extinct	37
38	Reform Medical College of Georgia, Macon	1854	.....	1861–1867	.....	1874	New title. See II-31	38
39	Savannah Medical College, Savannah	1838	.....	1861–1866	.....	1880	Extinct.	39
40	Southern Botanico Medical College,, Forsyth-Macon-Atlanta	1839	1841	.....	.....	1854	New title. See II-38	40
41	Southern Medical College, Atlanta	1878	1880	.....	1898	1898	Merged with II-29 to form I-20	41
42	Thompsonian College, Barbourville	1850	.....	.....	.....	.....	Extinct.	42
43	Woman's Medical College of Georgia and Training School for Nurses, Atlanta	1889	1890	.....	1891	1891	Extinct	43
	ILLINOIS.							
44	American College of Medicine and Surgery, Chicago	1902	1903	.....	1907	1907	New title. See I-26	44
45	Chaddock School of Medicine, Quincy	1888	1889	.....	1890	1890	Extinct. Had 30 graduates	45
46	Chicago College of Medicine and Surgery, (Physio-medical), Chicago	1897	.....	.....	.....	1899	Merged with II-53 to form I-27. No classes graduated	46
47	Chicago College of Science, Chicago	1888	.....	.....	.....	1889	Extinct. Fraudulent	47
48	Chicago Correspondence University, Chicago	1885	.....	.....	.....	1887	Extinct. Fraudulent	48
49	Chicago Eclectic Medical College, Chicago	1901	.....	.....	.....	1902	New title. See II-44. No graduates	49
50	Chicago Homeopathic Medical College, Chicago	1876	1877	.....	1904	1904	Merged into I-29	50
51	Chicago Medical College	1864	.....	.....	1891	1891	New title. See I-34	51
52	Chicago Northwestern College	1862	.....	.....	.....	1870	New title. See II-59. Fraudulent	52
53	Chicago Physio-Medical College	1891	1891	.....	1899	1899	Merged with II-46 to form I-27	53
54	Chicago Physio-Medical Institute	1885	1886	.....	1890	1891	New title. See II-53	54
55	College of Physicians and Surgeons of the Upper Mississippi, Rock Island	1848	1850	.....	.....	1850	New title. See II-108	55
56	Dearborn Medical College, Chicago	1903	1904	.....	1907	1907	Extinct. A night school	56
57	Dunham Medical College, Chicago (Homeopathic)	1895	1896	.....	1902	1902	Merged into I-30	57
58	Dutton Medical College, Chicago	....	.....	.....	.....	1903*	Fraudulent. Extinct	58
59	Edinburg University of Chicago and St. Louis, Chicago	1870	.....	.....	.....	.....	Extinct. Fraudulent	59
60	German Academy of Physiatric Physicians, Chicago	1892	.....	.....	.....	.....	Extinct. Fraudulent (d)	60
61	German-American Homeopathic Medical College, Chicago	1892	.....	.....	.....	.....	Extinct. Fraudulent (d)	61
62	German College of Gynecology, Pediatrics and Obstetrics, Chicago	1892	.....	.....	.....	.....	Extinct. Fraudulent (d)	62
63	German College of Medicine and Obstetrics, Chicago	1891	.....	.....	.....	.....	Extinct. Fraudulent (d)	63
64	German Homeopathic Medical College, Chicago	1891	.....	.....	.....	.....	Extinct. Not recognized (d)	64
65	German Medical College, Chicago	1891	.....	.....	.....	.....	Extinct. Fraudulent (d)	65
66	Harvey Medical College, Chicago	1891	1895	.....	1905	1905	Extinct. A night school	66
67	Illinois Health University, Chicago	....	.....	.....	.....	1897	Charter revoked. Fraudulent (e)	67
68	Illinois Standard College of Medicine and Surgery	....	.....	.....	.....	1898*	Extinct. Not recognized (a)	68

* Date given is approximate. Footnotes, (a), (b), etc., will be found on page 602.

Number.	NAME AND LOCATION OF COLLEGE.	Year Organized.	First Class Graduated.	Years When No Classes Graduated.	Last Class Graduated.	Year of Termination.	Remarks.	Number.
	ILLINOIS—Continued.							
69	Independent Medical College, Chicago	....	.....	.....	.....	1899	Charter revoked. Fraudulent (e)	69
70	International Medical Missionary Institute	1895	.....	.....	.....	.....	Extinct (a)	70
71	Medical Department of Illinois, Jacksonville	1843	.....	.....	.....	1848	Extinct. Had 37 graduates	71
72	Medical Department of Lind University, Chicago	1859	1860	.....	.....	1864	New title. See II-51	72
73	Medical Department University of St. Charles, St. Charles	1844	.....	.....	.....	1845	Extinct	73
74	Metropolitan Medical College, Chicago	....	.....	.....	.....	1900	Charter revoked. Fraudulent (e)	74
75	National Homeopathic Medical College, Chicago	1891	1892	.....	1895	1895	New title. See II-76	75
76	National Medical College, Chicago	1895	1896	.....	1899	1900	New title. See I-33	76
77	National University of Illinois, Chicago	1889	.....	.....	.....	.....	Extinct. Fraudulent	77
78	Northwestern College of Midwifery, Chicago	1875	.....	.....	.....	1878	New title. Fraudulent. See II-92 (f)	78
79	Northwestern University Woman's Medical School, Chicago	1892	1892	.....	1901	1901	Extinct	79
80	Quincy College of Medicine, Quincy	1882	1884	.....	1888	1888	New title. See II-45	80
81	Woman's Hospital Medical College, Chicago	1870	1871	1872–1878	1891	1892	New title. See II 79	81
	INDIANA.							
82	American Medical College, Indianapolis	1894	1895	.....	1897	1897	Extinct (g)	82
83	Beach Medical College, Indianapolis	1883	.....	.....	.....	1884	New title. See II-84	83
84	Beach Medical Institute, Indianapolis	1884	1885	.....	1885	1886	Merged into II-96 (h)	84
85	Central College of Physicians and Surgeons, Indianapolis	1879	1880	.....	1905	1905	Merged with II-103 to form II-99	85
86	College of Physicians and Surgeons of Indiana, Indianapolis	1873	1874	.....	1878	1878	Merged with II-98 to form II-103	86
87	Curtis Physio-Medical College, Indianapolis	1893	.....	.....	.....	1898	Extinct (g)	87
88	Curtis Physio-Medical Institute, Marion	1881	.....	.....	.....	1890	Extinct (g), (h)	88
89	Department of Obstetrics, Indiana Eclectic Medical College, Indianapolis	1878	.....	.....	.....	1890	Extinct. Fraudulent (f)	89
90	Eclectic College of Physicians and Surgeons, Indianapolis	1890	1891	.....	1894	1894	Extinct	90
91	Eclectic Medical College of Indiana	1900	1903	.....	1908	1908	Suspended	91
92	Fort Wayne College of Medicine, Fort Wayne	1879	1880	1899	1905	1905	Merged with II-103 to form II-99	92
93	Hospital Medical College of Evansville, Evansville	1882	1883	.....	1886	1886	Extinct	93
94	Indiana Central Medical College, Greencastle	1850	.....	.....	.....	1854	Extinct	94
95	Indiana College of Medicine and Midwifery, Indianapolis	1878	.....	.....	.....	1888*	Extinct. Fraudulent (f)	95
96	Indiana Eclectic Medical College, Indianapolis	1880	1881	.....	1890	1890	Extinct (h)	96
97	Indiana Medical College, LaPorte	1845	.....	.....	.....	1849	Extinct	97
98	Indiana Medical College, Indianapolis (No. 1)	1869	1870	.....	1878	1878	Merged with II-86 to form II-103	98
99	Indiana Medical College, Indianapolis (No. 2)	1905	1906	.....	1908	1908	Merged into I-138	99
100	LaPorte University, Medical Department, LaPorte	1844	.....	.....	.....	1845	New title. See II-97	100
101	Medical College of Evansville, Evansville	1849	1850	1854–1872	1884	1884	Extinct	101
102	Medical College of Fort Wayne, Fort Wayne	1876	1877	.....	1883	1883	Extinct	102
103	Medical College of Indiana, Indianapolis	1878	1879	.....	1905	1905	Merged with II-85, 92, to form II-99	103
104	State College of Physicians and Surgeons, Indianapolis	1906	1907	.....	1907	1907	New title. See I-38	104
105	University of Indiana, New Albany	1833	.....	.....	.....	.....	Extinct. Fraudulent	105
106	University of Indianapolis, Indianapolis	....	.....	.....	.....	1891*	Non-existant (i)	106
107	University of Medicine, Indianapolis	1897	1898	.....	.....	.....	Extinct (g)	107
	IOWA.							
108	College of Physicians and Surgeons, Keokuk	1849	1850	.....	1899	1899	Merged with II-114 to form I-40 (j)	108
109	Council Bluffs Medical College, Council Bluffs	1893	.....	.....	.....	1895	Extinct. No graduates	109
110	Iowa College of Physicians and Surgeons, Des Moines	1882	1883	.....	1903	1903	New title. See I-39	110
111	Iowa Eclectic Medical College, Des Moines	1881	1882	1884–1887	1893	1893	Extinct. See II-112 (h)	111
112	Iowa Medical College, Eclectic, Des Moines	1883	1884	.....	.....	1887	Extinct (h)	112
113	Iowa Medical College, Keokuk	1858	.....	.....	.....	1860	Extinct	113
114	Keokuk Medical College, Keokuk	1890	1891	.....	1899	1899	Merged with II-108 to form I-40	114
115	King Eclectic Medical College, Des Moines	1883	1884	.....	.....	1889*	Extinct (k)	115
	KANSAS.							
116	College of Physicians and Surgeons, Kansas City	1894	1895	.....	1905	1905	Merged. See I-45	116
117	Eclectic Medical University, Kansas City	1898	1900	.....	1908	1908	New title. See I-46	117
118	Kansas City College of Medicine and Surgery, Kansas City	1897	1898	.....	1898	1898	New title. See II-194	118
119	Kansas Medical College, Independence	1872	1874	.....	1875	1875	Extinct	119
120	Wichita Medical College, Wichita	1889	.....	.....	.....	1890	Extinct. No graduates	120
	KENTUCKY.							
121	Eclectic Medical College, Louisville	1848	.....	.....	.....	.....	Extinct	121
122	Hospital College of Medicine, Louisville	1874	1875	.....	1907	1907	Merged with II-127 to form II-126	122
123	Jefferson School of Medicine, Louisville	1882	1882	.....	1882	1882	Extinct	123
124	Kentucky School of Medicine, Louisville	1850	1851	.....	1908	1908	Merged into I-49	124
125	Kentucky University Medical Department, Louisville	1898	1899	.....	1906	1906	Merged into I-49	125
126	Louisville and Hospital Medical College, Louisville	1907	1908	.....	1908	1908	Merged into I-49	126
127	Louisville Medical College, Louisville	1869	1870	.....	1907	1907	Merged with II-122 to form II-126	127
128	Louisville Medical Institute, Louisville	1837	1838	.....	1846	1846	New title. See I-49	128
129	Medical Department State University (Colored) Louisville	1899	.....	.....	.....	1903	Merged into I-47. No graduates	129
130	Medical Department of Transylvania University, Lexington	1817	1818	.....	.....	1859	New title. See II, 124	130
	LOUISIANA.							
131	Charity Hospital Medical College, New Orleans	1873	.....	.....	.....	1877	Extinct	131
132	Medical College of New Orleans, University, New Orleans	1889	1892	1895	1902	1902	New title. See I-50	132
133	Medical College of Louisiana, New Orleans	1834	1835	1863–1865	1884	1884	New title. See I-51	133
134	New Orleans School of Medicine, New Orleans	1856	.....	.....	.....	1870	Extinct	134
	MAINE.							
135	Druidic University of Maine, Lewiston	1880	.....	.....	.....	1887	Charter revoked (h) (l)	135
136	Eclectic Medical College of Maine, Lewiston	1881	.....	.....	.....	1887	Charter revoked (h) (l)	136
137	Portland School for Medical Instruction, Portland	1858	.....	.....	.....	1902	Extinct. No graduates	137
	MARYLAND.							
138	Baltimore University School of Medicine, Baltimore	1884	1885	.....	1907	1907	Extinct	138
139	College of Medicine of Maryland, Baltimore	1807	1810	.....	1812	1812	New title. See I-58	139
140	Medical Department of Washington College, Baltimore	1827	1828	....	.....	1840	New title. See II-143	140
141	Medico-Chirurgical and Theological College of Christ's Institution, Baltimore	1900	.....	.....	.....	.....	(m)	141
142	Southern Homeopathic Medical College, Baltimore	1891	1892	.....	1907	1907	New title. See I-53	142
143	Washington University School of Medicine, Baltimore	1840	.....	1851–1866	.....	1877	Merged into I-55	143

* Date given is approximate. Footnotes, (a), (b), etc., will be found on page 602.

Number.	NAME AND LOCATION OF COLLEGE.	Year Organized.	First Class Graduated.	Years When No Classes Graduated.	Last Class Graduated.	Year of Termination.	Remarks.	Number.
	MASSACHUSETTS.							
144	Bellevue Medical College of Massachusetts, Boston	....	.....	.....	.....	1883	Extinct. Fraudulent	144
145	Berkshire Medical College, Pittsfield	1823	.....	.....	.....	1867	Extinct.	145
146	Clark University Medical Department, Worcester	1887	.....	.....	.....	.....	Extinct. Did not grant degrees	146
147	Excelsior Medical College, Boston	....	.....	.....	.....	1883	Extinct. Fraudulent (n)	147
148	First Medical College of the American Health Society, Boston	....	.....	.....	.....	1883	Moved. See II-362. Fraudulent (o).	148
149	Medical Department of the American University of Boston, Boston	....	.....	.....	.....	1883	Extinct. Fraudulent	149
150	New England Botanico-Medical College, Worcester	1848	.....	.....	.....	1852	New title. See II-154	150
151	New England Female Medical College, Homeopathic, Boston	1848	.....	.....	.....	1874	Merged with I-60	151
152	New England University of Arts and Sciences, Boston	....	.....	.....	.....	1881	Extinct. Fraudulent	152
153	Reserved College of Physicians and Surgeons, Springfield	....	.....	.....	.....	1893	Extinct. Fraudulent	153
154	Worcester Medical College, Eclectic, Worcester	1852	.....	.....	.....	1859	Suspended	154
	MICHIGAN.							
155	Detroit Medical College, Detroit	1868	1869	.....	1885	1885	Merged with II-159 to form I-64	155
156	Detroit University of Medicine, Detroit	1881	.....	.....	.....	.....	Extinct	156
157	Detroit University of Rational Medicine and Surgery, Detroit	1880	.....	.....	.....	.....	Extinct	157
158	Grand Rapids Medical College, Grand Rapids	1897	1898	.....	1907	1907	Extinct	158
159	Michigan College of Medicine, Detroit	1880	1881	.....	1885	1885	Merged with II-155 to form I-64	159
160	Michigan College of Medicine and Surgery, Detroit	1888	1889	.....	1906	1907	Extinct	160
161	Michigan Eclectic Medical College, Detroit	1880	.....	.....	.....	.....	Extinct	161
162	Michigan Homeopathic Medical College	1872	.....	.....	.....	1873	Extinct	162
163	Michigan Medical College, Lansing	1871	.....	.....	.....	1873	Extinct	163
164	Michigan School of Homeopathy and Surgery, Detroit	1863	.....	.....	.....	.....	Extinct	164
165	Saginaw Valley Medical College, Saginaw	1896	1897	.....	1903	1903	Merged into II-160	165
	MINNESOTA.							
166	Minneapolis College of Physicians and Surgeons, Minneapolis	1883	1886	.....	1908	1908	Merged into I-68	166
167	Minnesota Homeopathic Medical College, Minneapolis	1881	.....	.....	.....	1888	New title. See I-69	167
168	Minnesota Hospital Medical College, Minneapolis	1881	.....	.....	.....	1888	Absorbed by I-68	168
169	St. Paul Medical College, St. Paul	1878	.....	1880–1885	1887	1887	Merged into I-68	169
170	Winona Medical School	1872	.....	.....	.....	.....	Extinct. No diplomas issued	170
	MISSOURI.							
171	American Anthropological University of St. Louis	....	.....	.....	.....	1885*	Extinct. Fraudulent	171
172	Beaumont Hospital Medical College, St. Louis	1885	1887	.....	.....	1901	Merged with II-192 to form II-191	172
173	Central Medical College of St. Joseph, St. Joseph	1894	1895	.....	1905	1905	Merged with I-74 to form II-179	173
174	College of Homeopathic Medicine and Surgery of the Kansas City University	1896	1897	.....	1900	1900	New title. See II-180	174
175	College of Physicians and Surgeons of Kansas City	1869	1870	.....	1880	1880	New title. See II-189	175
176	College of Physicians and Surgeons of St. Joseph, St Joseph	1878	1870	.....	1881	1882	Merged with II-200 to form II-201	176
177	College of Physicians and Surgeons, St. Louis	1839	1870	.....	1871	1872	Extinct	177
178	Columbian Medical College, Kansas City	1898	1899	.....	1900	1901	Merged into II-194	178
179	Ensworth Central Medical College, St. Joseph	1905	1906	.....	1907	1908	Resumed former name. See I-74	179
180	Hahnemann Medical College of the Kansas City University, Kansas City	1900	1901	.....	1902	1902	Merged with II-187 to form I-77	180
181	Hering Medical College, Homeopathic, St. Louis	1880	.....	.....	.....	1882	Merged into I-76	181
182	Homeopathic Medical College of St. Louis, St. Louis	1873	.....	.....	.....	.....	Extinct. Fraudulent	182
183	Humboldt Institute, St. Louis	1859	.....	.....	.....	1866	New title. See II-184	183
184	Humboldt Medical College, St. Louis	1866	1867	.....	1868	1869	Extinct	184
185	Joplin College of Physicians and Surgeons, Joplin	1880	1881	.....	.....	1884	Extinct (h)	185
186	Joplin Medical College, Joplin	1881	.....	.....	.....	1882	Extinct (h)	186
187	Kansas City Homeopathic Medical College, Kansas City	1888	1889	.....	1902	1902	Merged with II-180 to form I-77	187
188	Kansas City Hospital College of Medicine, Kansas City	1882	1883	.....	.....	1888	Extinct (h)	188
189	Kansas City Medical College, Kansas City	1880	1881	.....	1905	1905	Merged into I-45	189
190	Kemper College Medical Department (McDowell Medical College), St. Louis	1840	1841	.....	1845	1845	New title. See I-80	190
191	Marion-Sims-Beaumont College of Medicine, St. Louis	1901	1901	.....	1903	1903	New title. See I-78 and II-192	191
192	Marion-Sims College of Medicine, St. Louis	1890	1891	.....	1900	1901	Merged with II-172 to form II-191	192
193	Medical College of Kansas City, Kansas City	1869	.....	.....	.....	1873	Extinct. Held three sessions	193
194	Medico-Chirurgical College, Kansas City	1898	1899	.....	1905	1905	Merged into I-45	194
195	Missouri Eclectic Medical College, Kansas City	....	.....	.....	.....	.....	Extinct. (a) Not existing since 1900.	195
196	Missouri Medical College (McDowell Medical College), St. Louis	1855	.....	1862–1865	1899	1899	Merged into I-82	196
197	Missouri School of Midwifery and Diseases of Women and Children, St. Louis	....	.....	.....	.....	1891*	Extinct. Fraudulent	197
198	Northwestern Medical College, St. Joseph	1879	1881	.....	1894	1894	Extinct	198
199	Occidental College of Physicians and Surgeons, Joplin	1886	.....	.....	.....	1887	Extinct	199
200	St. Joseph Hospital Medical College, St. Joseph	1876	1878	.....	1882	1882	Merged with II-176 to form II-201	200
201	St. Joseph Medical College, St. Joseph	1882	1883	.....	1888	1888	New title. See I-74	201
202	St. Louis College of Homeopathic Physicians and Surgeons, St. Louis	1869	.....	1871–1880	1882	1882	Merged into I-76	202
203	St. Louis College of Medicine and Natural Sciences St. Louis	1855	.....	.....	.....	1859	New title. See II-183 (p)	203
204	St. Louis Eclectic Medical College, St. Louis	1874	.....	.....	.....	1883	Closed by legal process (h)	204
205	St. Louis Hahnemann Medical College, St. Louis	1873	1874	.....	1874	1874	Extinct. Graduated 4 students	205
206	St. Louis Hygienic College of Physicians and Surgeons, St. Louis	1887	.....	.....	.....	1893*	Extinct	206
207	St. Louis Medical College	1855	1856	.....	1891	1891	New title. See I-82	207
208	St. Louis University Medical Department	1842	1843	.....	1855	1855	New title. See II-207. See also I-78.	208
209	St. Louis Woman's Medical College, St. Louis	1894	1895	.....	1896	1896	Extinct (q)	209
210	University of Kansas City Medical Department, Kansas City	1881	1882	.....	1888	1888	New title. See I-81	210
211	Woman's Medical College, Kansas City	1895	1896	.....	1903	1903	Extinct	211
212	Woman's Medical College of St. Louis, Regular	1891	1893	.....	.....	.....	Extinct (q)	212
213	Woman's Medical College of St. Louis, Homeopathic	1883	.....	.....	.....	1884	Extinct	213
	NEBRASKA.							
214	Nebraska School of Medicine, Omaha	1880	.....	.....	.....	1881	New title. No graduates. See II-215.	214
215	Omaha Medical College, Omaha	1881	1882	.....	1902	1902	New title. See I-86	215
216	University of Nebraska, College of Medicine, Regular Department, Lincoln	1870	1884	.....	1887	1887	Extinct. See also I-86	216
217	University of Nebraska, College of Medicine, Homeopathic Department, Lincoln	1883	1884	.....	1887	1887	Extinct	217
218	University of Nebraska, College of Medicine, Eclectic Department, Lincoln	1883	.....	.....	.....	1885	Extinct	218

* Date given is approximate.

Footnotes, (a), (b), etc., will be found on page 602.

Number.	NAME AND LOCATION OF COLLEGE.	Year Organized.	First Class Graduated.	Years When No Classes Graduated.	Last Class Graduated.	Year of Termination.	Remarks.	Number.
	NEW HAMPSHIRE.							
219	New England University of Arts and Sciences, Manchester	1876	.....	.....	.....	1877	Charter repealed. Fraudulent.....	219
220	University of New Hampshire, Department of Medicine, Nashua	1888	.....	.....	.....	.....	Extinct. Fraudulent (r).....	220
	NEW JERSEY.							
221	Central University of Medicine and Science, Jersey City	....	.....	.....	.....	1891	Charter repealed. Fraudulent.....	221
222	Hygeio-Therapeutic College, Bergen Heights	.....	.....	.....	.....	1891	Charter repealed. Fraudulent.....	222
223	Livingston University, Haddonfield	.....	.....	.....	.....	1891	Charter repealed. Fraudulent.....	223
224	Medical and Surgical College of the State of New Jersey	1888	.....	.....	.....	1891	Charter repealed (s).....	224
	NEW YORK.							
225	American College of Arts and Sciences, Buffalo	1886	.....	.....	.....	1893	Charter revoked. Fraudulent (r)..	225
226	American Society of Arts and Sciences, Buffalo	1885	.....	.....	.....	1893	Charter revoked. Fraudulent (r)..	226
227	American Society of Literature and Art, Buffalo	1886	.....	.....	.....	1893	Charter revoked. Fraudulent (r)..	227
228	American College of Medical Science, New York City	1858	.....	.....	.....	.....	Extinct. No graduates.....	228
229	Bellevue Hospital Medical College, New York City	1861	1862	.....	1898	1898	Merged with II-262 to form I-97.....	229
230	Brooklyn Academy of Medicine, Eclectic, Brooklyn	1861	.....	.....	.....	1888	Charter revoked. Not a teaching body.....	230
231	Buffalo College of Rational Medicine, Homeopathic, Buffalo	1879	.....	.....	.....	.....	Extinct. Fraudulent.....	231
232	Central Medical College of New York, Eclectic, Syracuse	1849	.....	.....	.....	1850	Moved. New title. See II-268 (t).....	232
233	College of Medicine, Botanic, New York City	1836	.....	.....	.....	1846*	Extinct (t).....	233
234	College of Physicians and Surgeons, Homeopathic, Buffalo	1880	1881	.....	1883	1884	Charter revoked (u).....	234
235	College of Physicians and Surgeons of the Western District of New York (Fairfield)	1809	1816	.....	1839	1840	Extinct. Total graduates, 589.....	235
236	College of Physicians and Surgeons of Syracuse University, Syracuse	1872	1873	.....	1875	1875	New title. See I-96.....	236
237	Columbia College, Medical Faculty, New York City	1792	1793	1798–1801 1803–1809	1810	1817	Merged into I-89.....	237
238	Druidic Banchoreion, Buffalo	1886	.....	.....	.....	1893	Charter revoked. Fraudulent (r)...	238
239	Eclectic Medical Institute of New York, Rochester	1848	.....	.....	.....	1849	Merged with II-237 to form II-231 (t)	239
240	Excelsior Medical College, New York City	1857	.....	.....	.....	1879	Extinct (t).....	240
241	Geneva Medical College, Geneva	1861	1862	.....	1872	1872	Merged into II-236. See II-248.....	241
242	Hamburg Canal College, Buffalo	....	.....	.....	.....	1883*	Extinct. Fraudulent.....	242
243	Homeopathic College of Physicians and Surgeons, Buffalo	1879	1880	.....	1880	1880	New title. See II-234.....	243
244	Homeopathic Medical College of the State of New York, New York City	1860	1861	.....	1869	1869	New title. See II-255.....	244
245	Kings College, Medical Faculty	1767	1769	.....	1774	1774	New title. See II-236.....	245
246	Medical and Surgical Institute and Sanitarium, Buffalo	1886	.....	.....	.....	1893	Charter revoked. Fraudulent (r)..	246
247	Medical Faculty of Rutgers (Queen's) College	1826	1827	.....	1827	1827	Extinct. See II-269 (t).....	247
248	Medical Institution of Geneva, Geneva	1835	1835	1854	1861	1861	New title. See II-241.....	248
249	Medical School of Fredonia, Fredonia	1847	.....	.....	.....	1848	New title. See II-239.....	249
250	Metropolitan Medical College, Eclectic, New York City	1852	.....	.....	.....	1862	Charter revoked. Four classes graduated (t).....	250
251	Mohawk Medical College, Buffalo	1879	.....	.....	.....	1884	Extinct. Fraudulent. Continuation of II-234.....	251
252	New Medical Institution, New York City	1792	1792	1794–1826	1827	1827	Extinct. Same college as II-247 and II-266.....	252
253	New York College of Magnetics, New York City	1887	.....	.....	.....	1893	Charter revoked (t).....	253
254	New York Free Medical College for Women, New York City	1871	1874	.....	1875	1876	Extinct. Diplomas recognized.....	254
255	New York Homeopathic Medical College, New York City	1869	1870	.....	1887	1887	New title. See I-94.....	255
256	New York Hygieo-Therapeutic College, New York City	1857	.....	.....	.....	1864	Extinct.....	256
257	New York Institute of Medical Science	1887	.....	.....	.....	1893*	Extinct. Fraudulent. Not chartered	257
258	New York Medical College, New York City	1850	1851	.....	1864	1864	Extinct.....	258
259	New York Medical College for Women, Homeopathic, New York City	1863	1864	.....	1866	1866	New title. See I-95.....	259
260	New York Preparatory School of Medicine, New York City	1859	.....	.....	.....	.....	Extinct (t).....	260
261	New York Reformed Medical College, Eclectic, New York City	1826	.....	.....	.....	1829*	Extinct (t).....	261
262	New York School of Medicine, New York City	1831	.....	.....	.....	1833	Extinct.....	262
263	New York University Medical College, New York City	1841	1842	.....	1898	1898	Merged with II-229 to form I-97.....	263
264	Niagara University Medical Department, Buffalo	1883	1883	.....	1898	1898	Merged with I-98.....	264
265	Preparatory Medical College, New York City and Poughkeepsie	1890	.....	.....	.....	1893	Exposed. Fraudulent.....	265
266	Queen's College (New Jersey), Faculty of Medicine, New York City	1792	1792	.....	1793	1793	New title. See II-247.....	266
267	Randolph Eclectic Medical Institute, Randolph	1848	.....	.....	.....	1849	Merged with II-239 to form II-232 (t)	267
268	Rochester Eclectic Medical College, Rochester	1850	.....	.....	.....	1852	Extinct (t).....	268
269	Rutgers Faculty of Geneva College, New York City	....	.....	.....	.....	1897*	Extinct. Fraudulent (t).....	269
270	Syracuse Medical College, Rochester	1850	.....	.....	.....	1855	Extinct (t). See II-273.....	270
271	United States Medical College, Eclectic, New York City	1878	1879	.....	1883	1884	Declared illegally chartered.....	271
272	Woman's Medical College of the New York Infirmary for Women and Children, New York City	1868	1870	.....	1899	1899	Extinct. Recognized.....	272
273	Worcester Medical School, Eclectic, Worcester	1846	.....	.....	.....	1852	Extinct (t). See II-270.....	273
	NORTH CAROLINA.							
274	College of Physicians and Surgeons, Arlington	1871	.....	.....	.....	.....	Extinct.....	274
275	Davidson School of Medicine, Davidson	1889	.....	.....	.....	1893	New title. See I-100. No graduates	275
276	Edinborough Medical College, Lumberton	1868	.....	.....	.....	.....	Extinct. Had 1 professor.....	276
	OHIO.							
277	American Eclectic Medical College, Cincinnati	1879	.....	.....	1896	1896	Extinct. (v).....	277
278	American Health College, Cincinnati	1874	.....	.....	.....	.....	Extinct. Fraudulent.....	278
279	American Medical College, Eclectic, Cincinnati	1839	.....	.....	.....	1857	Merged into I-106.....	279
280	Botanico-Medical College of Ohio, Cincinnati	1838	.....	.....	.....	1850	Extinct.....	280
281	Charity Hospital Medical College, Cleveland	1863	1865	.....	1869	1869	New title. See II-307.....	281
282	Cincinnati College of Medicine and Surgery, Cincinnati	1849	1852	.....	1901	1901	Extinct. Dept. for women. See II-311.....	282
283	Cincinnati Medical College, Cincinnati	1834	.....	.....	.....	1846	Merged into I-107.....	283
284	Cincinnati Physio-Medical College, Cincinnati	1836	.....	.....	.....	1880	Extinct.....	284
285	Cleveland Medical College, Cleveland	1843	1845	1862–1863	1881	1881	New title. See I-112.....	285
286	Cleveland Medical College, Homeopathic	1890	1891	.....	1897	1898	Merged with II-287 to form I-105.....	286

* Date given is approximate. Footnotes, (a), (b), etc., will be found on page 602.

Number.	NAME AND LOCATION OF COLLEGE.	Year Organized.	First Class Graduated.	Years When No Classes Graduated.	Last Class Graduated.	Year of Termination.	Remarks.	Number.
	OHIO—Continued.							
287	Cleveland University of Medicine and Surgery, Cleveland	1894	1895	.....	1897	1898	Merged with II-286 to form I-105	287
288	College of Medicine, Medical Department of National Normal University, Lebanon	1889	1891	1897–1899	1900	1900	Extinct	288
289	Columbus Medical College, Columbus	1875	1876	.....	1892	1892	Merged into II-305	289
290	Dayton Medical University, Dayton	1886	1887	.....	1889	1889	Extinct	290
291	Eclectic College of Medicine and Surgery, Cincinnati	1856	1857	.....	1859	1859	Merged into I-106	291
292	Homeopathic Hospital College, Cleveland	1870	1871	.....	1894	1894	New title. See II-287	292
293	Hygeia Medical College, Cincinnati	1893	1895	.....	.....	.....	Extinct (w)	293
294	Homeopathic Medical College for Women, Cleveland	1868	.....	.....	.....	1870	Merged into II-292	294
295	Inter-National Electropathic Institution, Penn., Brantford, Ont., and Mentor	1861	.....	.....	.....	1894	Extinct. See II-321 (w)	295
296	Laura Memorial Woman's Medical College, Cincinnati	1895	1896	.....	1903	1903	Extinct	296
297	Medical University of Ohio, Cincinnati	1883	.....	.....	.....	1891*	Extinct. Fraudulent	297
298	Northwestern Ohio Medical College	1883	1884	.....	1891	1891	Extinct	298
299	Ohio College of Obstetrics, Medicine and Midwifery, Cincinnati	1889	.....	.....	.....	.....	Extinct. Fraudulent	299
300	Ohio Medical University, Columbus	1890	1893	.....	1907	1907	Merged with II-305 to form I-110	300
301	Physio-Eclectic Medical College, Cincinnati	1876	.....	.....	.....	1879	New title. See II-277. Fraudulent	301
302	Physio-Medical College, Cincinnati	1836	.....	.....	.....	1880	Extinct (x)	302
303	Physio-Medical Institute, Cincinnati	1859	.....	.....	.....	1885	Extinct	303
304	Presbyterian Hospital and Woman's Medical College, Cincinnati	1891	1892	.....	1895	1895	Merged with II-311 to form II-296	304
305	Starling Medical College, Columbus	1847	1848	.....	1907	1907	Merged with II-300 to form I-110	305
306	Toledo School of Medicine, Toledo	1878	.....	.....	.....	1881	Extinct. No graduates	306
307	University of Wooster, Medical Department, Cleveland	1869	1870	1881	1896	1896	New title. See I-104	307
308	Western College of Homeopathic Medicine, Cleveland	1849	1853	.....	1857	1857	New title. See II-309	308
309	Western Homeopathic College, Cleveland	1857	1858	.....	1870	1870	New title. See II-292	309
310	Willoughby University, Medical Department, Willoughby, Lake County, Ohio	1835	.....	.....	.....	1847	Merged into II-305	310
311	Woman's Medical College of Cincinnati, Cincinnati	1887	1888	.....	1895	1895	Merged with II-304 to form II-296	311
312	Worthington Medical College, Eclectic, Worthington	1832	1834	1839–1843	1845	1845	New title. See I-106	312
313	Zanesville Academy of Medicine, Zanesville	1877	.....	.....	.....	1881	Closed by court	313
	OKLAHOMA.							
314	Oklahoma Medical College, Oklahoma City	1907	.....	.....	.....	1907	Suspended. No degrees given	314
315	Twentieth Century Physio-Medical College, Guthrie	1900	.....	.....	.....	1904	Charter revoked. Fraudulent (y)	315
	PENNSYLVANIA.							
316	American College of Medicine in Pennsylvania and the Eclectic Medical College of Philadelphia	1853	.....	.....	.....	1856*	New title. See II-320	316
317	American University of Pennsylvania, Eclectic, Philadelphia	1867	.....	.....	.....	1880	Extinct. Fraudulent	317
318	College of Philadelphia, Department of Medicine	1765	1768	1772–1779	1782	1782	New title. See I-121	318
319	Eclectic Medical College of Pennsylvania, Philadelphia	1856	.....	.....	.....	1880	Extinct. Fraudulent. Do not confuse with II-320	319
320	Eclectic Medical College of Philadelphia	1856	.....	.....	.....	1865	New title. See II-331	320
321	Electropathic Institute, Philadelphia	1861	.....	.....	.....	1876	Moved to Canada, then Ohio. See II-295	321
322	Franklin Medical College, Philadelphia	1847	.....	.....	.....	1852	Extinct	322
323	Hahnemann Medical College of Philadelphia	1866	1867	.....	1869	1869	Merged with II-324 to form I-117	323
324	Homeopathic Medical College of Pennsylvania, Philadelphia	1848	1849	.....	1859	1869	Merged with II-323 to form I-117	324
325	Lincoln University Medical Department, Oxford	1870	.....	.....	.....	1872	Extinct	325
326	Medical Department of Jefferson College, Philadelphia	1825	1826	.....	1838	1838	New title. See I-118	326
327	North American Academy of the Homeopathic Healing Art, Allentown	1835	.....	.....	.....	1841*	Extinct	327
328	Penn Medical University, Philadelphia	1853	.....	1868–1874	.....	1881	Extinct	328
329	Pennsylvania Medical College, Philadelphia	1839	.....	.....	.....	1861	Extinct	329
330	Philadelphia College of Medicine and Surgery, Philadelphia	1846	.....	.....	.....	1859	Merged into II-329	330
331	Philadelphia University of Medicine and Surgery, Philadelphia	1865	.....	.....	.....	1880	Extinct. Fraudulent	331
332	Thompsonian Medical College, Allentown, Pa	1904	.....	.....	.....	.....	(z))	332
	RHODE ISLAND.							
333	Brown University, Medical Department, Providence	1811	1814	1821	1827	1827	Extinct	333
	SOUTH CAROLINA.							
334	Charleston Medical School, Charleston	1894	.....	.....	.....	1895*	Extinct (a)	334
335	Medical College of South Carolina, Charleston	1823	1825	.....	1832	1832	New title. See I-126	335
336	University of South Carolina Medical Department, Columbia	1866	.....	.....	.....	1876	Extinct	336
	TENNESSEE.							
337	Botanic Medical College, Memphis	1857	.....	.....	.....	1859	New title. See II-339	337
338	Chattanooga National Medical College (Colored), Chattanooga	1899	.....	.....	1904	1904	Extinct	338
339	Eclectic Medical Institute, Memphis	1859	.....	.....	.....	1861	Extinct	339
340	Hannibal Medical College (Colored), Memphis	1889	.....	1893–1896	.....	1896	Extinct. No evidence of any graduates	340
341	Jefferson Medical Association, Dandridge	1854	.....	.....	.....	1875*	Extinct. Four diplomas granted (aa)	341
342	Knoxville College, Medical Department (Colored), Knoxville	1895	.....	1896–1897	.....	1900	Extinct. See I-130	342
343	Memphis Medical College, Memphis	1854	.....	1861–1868	.....	1873	Extinct	343
344	Nashville Medical College, Nashville	1876	1877	.....	.....	1896	New title. See I-135 (bb)	344
345	Shelby Medical College, Nashville	1858	.....	.....	.....	1862	Extinct	345
	TEXAS.							
346	Bell Medical College, Dallas	1903	1904	.....	1905	1905	New title. See I-140	346
347	Dallas Medical College, Dallas	1900	1901	.....	1904	1904	Merged with I-139	347
348	Galveston Medical College, Galveston	1864	.....	.....	.....	1873	New title. See II-352 (cc)	348
349	Gate City Medical College, Texarkana	1902	.....	.....	.....	1908	Suspended	349
350	Medical Department of the University of San Antonio, San Antonio	1888	.....	.....	.....	.....	Extinct. No graduates	350
351	Physio-Medical College of Texas, Dallas	1902	1902	.....	1908	1908	Merged into I-27	351
352	Texas Medical College and Hospital, Galveston	1873	.....	1882–1888	.....	1891	Extinct	352
353	University of Dallas, Medical Department, Dallas	1900	1901	.....	1903	1903	New title. See I-139	353
354	University of Medicine and Surgery, Dallas	1906	.....	.....	.....	.....	No graduates	354
	UTAH.							
355	Medical Institution of Morgan City, Morgan City	....	.....	.....	.....	1883*	Extinct	355

* Date given is approximate. **Footnotes, (a), (b), etc., will be found on page 602.**

Number.	NAME AND LOCATION OF COLLEGE.	Year Organized.	First Class Graduated.	Years When No Classes Graduated.	Last Class Graduated.	Year of Termination.	Remarks.	Number.
	VERMONT.							
356	Castleton Medical Academy, Castleton	1818	.....	.....	....	1821	New title. See II-361	356
357	Castleton Medical College, Castleton	1841	.....	.....	.....	1861	Extinct	357
358	Clinical School of Medicine	1827	.....	.....	1835	1835	New title. See II-363	358
359	Trinity University, Coll. of Med. and Surg. of the State of Vermont, Bennington	1889	.....	.....	.....	.....	Extinct. Fraudulent (r)	359
360	Union Medical Institute, Newbury	1887	.....	.....	.....	.....	Extinct. Fraudulent	360
361	Vermont Academy of Medicine	1821	.....	1839	.....	1841	New title. See II-357	361
362	Vermont Medical College (the Second Medical College of the American Health Society), Rutland	1883	.....	.....	.....	1893	Extinct. Fraudulent (o)	362
363	Vermont Medical College, Woodstock	1835	1836	.....	.....	1856	Extinct. See II-358. Reputable	363
	VIRGINIA.							
364	College of Physicians and Surgeons, Richmond	1893	.....	.....	.....	1894	New title. See I-148	364
365	Hampden Sydney College, Medical Department, Richmond	1838	1840	.....	1858	1858	New title. See I-146	365
366	Medical School of the Valley of Virginia, Winchester	1826	.....	.....	.....	1861	Extinct	366
367	Randolph Macon College, Medical Department, Prince Edward Court House	1849	.....	.....	.....	1855	Extinct	367
368	Winchester Medical College, Winchester	1826	.....	1829–1850	.....	1862*	Extinct	368
	WASHINGTON.							
369	Northwestern College of Biochemistry, Spokane	1892	.....	.....	.....	1893*	Extinct. Fraudulent	369
370	University of Spokane Falls, Coll. of Med., Spokane	1890	.....	.....	.....	.....	No sessions held	370
371	University of Washington Medical Department	1885	.....	.....	.....	.....	No sessions held	371
372	Washington Biochemic Medical College, North Yakima	1889	.....	.....	.....	1892	New title. See II-369. Fraudulent(dd)	372
	WISCONSIN.							
373	Milwaukee College of Physicians and Surgeons (Coney Medical Institute), Milwaukee	1881	.....	.....	.....	1883	Charter annulled. Fraudulent	373
374	Wisconsin Eclectic Medical School, Milwaukee	1894	.....	.....	.....	1898	Suppressed. Fraudulent	374

* Date given is approximate.

REFERENCES TO TABLE 4, PART I.

1. See also II-46.

2. Reported not in good standing by the Illinois State Board of Health.

3. Graduated two classes each year from 1874 to 1883 inclusive.

4. Reported not now in good standing by the Missouri State Board of Health.

5. The name of this college during 1906 and 1907 was the Ensworth-Central Medical College. See II-179.

6. No classes were graduated in 1857, 1858, 1860 to 1873 inclusive, 1887 to 1890 inclusive, 1892 and 1902.

7. Offers only the first two years of the medical course.

8. These colleges in 1909 will become the College of Medicine of the University of Cincinnati.

9. Was located at Portland from 1878 to 1895.

10. From 1874 to 1895 sessions were held jointly by the University of Nashville and Vanderbilt University Medical Departments, each university graduating its own portion of the class each year.

REFERENCES TO TABLE 4, PART II.

(a) Physicians have appeared before state boards claiming graduation from these colleges.

(b) Incorporated by one Orrin Robertson et al., all claiming to be "M.D.'s," although the sources of their degrees are unknown. Exposed by the Hot Springs (Ark.) Medical Journal. (Rauch.)

(c) Said to have existed only on paper.

(d) These six colleges were organized by one Johann Malok of Chicago, and were all declared fraudulent by the Illinois State Board of Health. (Rauch.)

(e) Organized by "J. Armstrong, M.D.," et al. The charters of these three institutions were revoked by the Supreme Court on the ground of fraud. In 1900 Armstrong was sentenced to jail for eighteen months and fined $500.

(f) This and two other institutions were organized by one Charles P. Heil. All were listed as "fraudulent" by the Illinois State Board of Health.

(g) Reported as "not recognized" by the Indiana State Board of Medical Registration and Examination.

(h) Diplomas not recognized by the Illinois State Board of Health. (Rauch.)

(i) A "graduate" of this institution appeared in England in 1891.

(j) This was the Medical Department of the State University of Iowa from 1854 to 1870 inclusive.

(k) In 1899 this school was declared not in good standing by the Iowa State Board of Medical Examiners. (Kennedy.)

(l) Reported "not recognized" by the Maine Board of Registration of Medicine.

(m) This school was chartered in 1900. The Maryland Board of Medical Examiners refused to recognize the diplomas, but was compelled by a writ of mandamus to examine the graduates. The court ruled that, under the Maryland law, since the institution was legally incorporated, the equipment, curriculum, hours of study, etc., could not be considered. The character of the institution can further be seen by a perusal of its "Fifth Annual Commencement and Catalogue"; which was "Edited by the Rev. Dr. P. Thomas Stanford, A.M., M.D., D.D., LL.D., Ph.D., Vice-President." The sources of these multitudinous degrees are not given.

(n) This college was founded by a "Dr." Alfred Booth, who, April 7, 1893, was sentenced to the New York State Penitentiary for having sold a diploma to a reporter of the New York Herald. (Rauch.)

(o) These two institutions were organized by one George Dutton. Listed as fraudulent by the Illinois State Board of Health. (Rauch.)

(p) An attempt at reform in medical education. Preliminary science work, and a graded four-year course were required. (Rauch.)

(q) Present evidence seems to indicate that these were separate institutions, but they may have been one and the same.

(r) Operated by one "P. Ripley Bradbury, M.D." whose right name seems to have been Henry Freeland Bradbury. Listed as fraudulent by the Illinois State Board of Health. (Rauch.)

(s) Pronounced "disreputable" in 1890 by the Hudson County (N. J.) Medical Society. (Rauch).

(t) Reported as not recognized by the New York Board of Regents.

(u) The diplomas issued by this college were made legal by act of the New York legislature.

(v) In his 1891 report on medical education, page 131, John Rauch, at that time secretary of the Illinois State Board of Health, gives information which renders doubtful the reputability of this institution.

(w) Reported as not recognized by the Ohio State Board of Medical Registration and Examination.

(x) Also known as the Cincinnati Literary and Scientific Institute.

(y) The dean of this college was H. Warner Newby, a "graduate" of the Independent Medical College, a Chicago diploma mill. The secretary was R. S. Clymer, M.D. This school had "Correspondence Departments" at Union City, Michigan, and at Hatfield, Pennsylvania. Circulars were sent out advertising diplomas for $10 each, under the name of "shares of the Twentieth Century Health Association." The claim was made that "graduates of the Twentieth Century Medical College can practice anywhere in the United States without any interference by the State Board of Medical Examiners." (See Journal A. M. A., Oct. 1, 1904, page 990.)

(z) A printed circular sent out a few years ago says that this college was incorporated by the State of Colorado in February, 1904, "for the purpose of giving a complete course in medicine, at the college and by correspondence." The charter was filed in Pennsylvania April, 1904, and a Sanitarium opened in Allentown. The charter was also filed in California in June, 1904, and offices were opened at Sacramento. There are departments at Detroit, Michigan, and at Philadelphia, Pennsylvania, as well as in Mexico and in London. There is a Hillside Sanitarium Co., Incorporated; a Thompsonian Health Association Sanitarium and a Hillside Sanitarium operating in connection and a Sanitarium at Carversville, Pennsylvania. The secretary and treasurer is given as R. S. Clymer, M.D. See note (y) above.

(aa) Said to have been an examining board only.

(bb) This name was coupled with that of the Medical Department of the University of Tennessee for the classes graduating to and including 1896.

(cc) Exposed by the Arkansas Medical Journal, Aug. 15, 1907, page 134. See Journal A. M. A., Oct. 19, 1907, page 1385. Recognition withdrawn by the Texas State Board of Medical Examiners in November, 1907.

(dd) Ten days after the charter for this institution was obtained, George M. Carey, a non-graduate in medicine, registered a diploma which he had issued to himself. (Rauch.) See also II-369.

(*Continued from page 591.*)

cine, Columbia, Mo.; University Medical College, Kansas City, Mo.; Medical Department St. Louis University, St. Louis, Mo.; Washington University Medical Department, St. Louis, Mo.; University of Nebraska College of Medicine, Lincoln and Omaha, Neb.; University of Buffalo, Medical Department, Buffalo, N. Y.; University and Bellevue Hospital Medical College, New York, N. Y.; University of North Carolina Medical Department, Chapel Hill, N. C.; Wake Forest College School of Medicine, Wake Forest, N. C.; University of North Dakota Medical Department, University, N. D.; Miami Medical College, Cincinnati, Ohio; Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, Cleveland, Ohio; Western Reserve University Medical College, Cleveland, Ohio; Starling-Ohio Medical College, Columbus, Ohio; State University of Oklahoma School of Medicine, Norman, Okla.; Meharry Medical College, Medical Department Walden University, Nashville, Tenn.; Vanderbilt University, Medical Department, Nashville, Tenn.; University College of Medicine, Richmond, Va.; University of West Virginia Medical Department, Morgantown, W. Va.; Marquette University Medical Department (Milwaukee Medical College), Milwaukee, Wis.; University of Wisconsin College of Medicine, Madison, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, Wis.

The secretary-treasurer of the Association is Dr. Fred C. Zapffe, 1764 Lexington Street, Chicago.

SOUTHERN MEDICAL COLLEGE ASSOCIATION.

The following requirements for admission to the freshman year are exacted by the colleges belonging to this Association:

The student must possess a diploma of graduation from some literary or scientific institution of learning, or a certificate that he has passed the entrance examination to a university, or a certificate from some legally constituted high school. The minimum preliminary education required by the Southern Medical College Association is a grammar school education and two years' successful attendance at a recognized preparatory school or a high school, or its equivalent, said equivalent to be determined by a superintendent of public instruction. A student may be given one month from date of his admission to submit his certificate of qualification. And if he fails to possess the requisite educational qualifications in one or more branches, he may matriculate and attend his first course of lectures, but must present the requisite certificate before matriculating in the second course, and all tickets or certificates in such cases must have the conditions printed plainly on the face of each.

Colleges belonging to this Association are not to issue certificates of credit to any student who has not been in actual attendance on at least 80 per cent. of a seven months' medical course, nor to allow advanced standing on credentials representing less than that amount of work. No student is to be allowed to graduate unless he has been in actual attendance on at least 80 per cent. of a seven months' session immediately preceding said graduation.

The following colleges are members:

Medical College of Alabama, Mobile, Ala.; Birmingham Medical College, Birmingham, Ala.; Medical Department University of Arkansas, Little Rock, Ark.; College of Physicians and Surgeons, Little Rock, Ark.; Atlanta College of Physicians and Surgeons, Atlanta, Ga.; Medical College of Georgia, Augusta, Ga.; Medical Department, University of Mississippi, Oxford, Miss.; Medical Department, Epworth University, Oklahoma, Okla.; Medical Department, University of Tennessee, Nashville, Tenn.; Medical Department, University of Nashville, Nashville, Tenn.; Memphis Hospital Medical College, Memphis, Tenn.; Chattanooga Medical College, Chattanooga, Tenn.; Tennessee Medical College, Knoxville, Tenn.; Medical Department, University of the South, Sewanee, Tenn.; Medical Department, Fort Worth University, Fort Worth, Texas; Medical Department, Baylor University, Dallas, Texas; Medical Department, Southwestern University, Dallas, Texas.

The secretary-treasurer is Dr. Lewis C. Morris, Birmingham, Ala.

AMERICAN INSTITUTE OF HOMEOPATHY.

The minimum requirements for entrance into the freshman class of all homeopathic medical colleges, as adopted in 1901, are, with abbreviation, as follows:

1. English Composition—Exercise on assigned theme, not less than 200 words. Exercise in reading. Exercise in correction of ungrammatical sentences.

2. Mathematics.—Arithmetical exercises in (a) vulgar fractions, (b) decimals, (c) percentage, (d) proportion, (e) square and cube root, (f) weights and measures, (g) decimal system. Mensuration—(a) Definition of terms, (b) exercises under the more fundamental rules.

3. Geography.—General facts about North America.

4. History.—General, with particular reference to human progress in art, science and letters. (The examination to avoid exact dates and minor details.)

5. Latin Language.—(a) Grammar, (b) four books on Cæsar or its equivalent.

The colleges recognized as in good standing by this organization are:

Hahnemann Medical College of the Pacific, San Francisco, Cal.; Denver College of Physicians and Surgeons, Denver, Colo.; Hahnemann Medical College, Chicago; Hering Medical College; Homeopathic Medical Department of the State University of Iowa; Southwestern Homeopathic College, Louisville, Ky.; Atlantic Medical College, Baltimore, Md.; Boston University School of Medicine; Homeopathic Medical College of University of Michigan; Detroit Homeopathic College; College of Homeopathic Medicine and Surgery of University of Minnesota; Homeopathic Medical College of Missouri; Kansas City Hahnemann Medical College; New York Homeopathic Medical College; New York Medical College for Women; Cleveland Homeopathic Medical College; Pulte Medical College, Cincinnati; Hahnemann Medical College of Philadelphia.

The secretary is Dr. Frank Kraft, 2055 East Nineteenth Street, Cleveland, Ohio.

NATIONAL CONFEDERATION OF ECLECTIC MEDICAL COLLEGES.

The following are the present minimum requirements for admission to colleges members of this Association:

1. A certificate of good moral character.

2. Diploma of graduation from (a) a four years graded high school, or (b) normal school, or (c) seminary, or (d) literary or scientific college, or (e) university, or (f) evidence of having passed the matriculation examination to a recognized literary or scientific college, or (g) a medical student's certificate secured by examination from a state medical board.

The following colleges are members of this Association:

American Medical College, St. Louis, Mo.; Bennett College of Eclectic Medicine and Surgery, Chicago, Ill.; California Eclectic Medical College, Los Angeles, Cal.; Eclectic Medical College of the City of New York, New York, N. Y.; Eclectic Medical Institute, Cincinnati, Ohio; Georgia College of Eclectic Medicine and Surgery, Atlanta, Ga.; Lincoln Medical College, Lincoln, Neb.; Western Eclectic College of Medicine and Surgery, Kansas City, Kan.

The secretary-treasurer is John K. Scudder, M.D., 1009 Plum Street, Cincinnati, Ohio.

COLLEGE NOTES.

Colleges Merged.—During the past year several mergers of medical colleges have taken place. In Kentucky last summer the Louisville Medical College and the Hospital College of Medicine united, forming the Louisville and Hospital Medical College, and just recently this college and the Kentucky School of Medicine merged into the University of Louisville Medical Department. In Indiana, the Indiana Medical College merged into the Indiana University School of Medicine. In Minnesota the Minneapolis College of Physicians and Surgeons merged into the University of Minnesota College of Medicine and Surgery. In Ohio, the Medical College of Ohio and the Miami Medical College have united to form the Medical Department of the University of Cincinnati.

Colleges Discontinued.—Besides the seven medical colleges which have lost their identity through mergers during the year, seven colleges have suspended. These are the International Medical Missionary College, Atlanta, Ga.; the Dearborn Medical College, Chicago; the Eclectic Medical College of Indiana, Indianapolis; the Baltimore University School of Medicine, Baltimore, Md.; the Michigan College of Medicine and Surgery, Detroit, the Physio-Medical College of Dallas, Texas, and the Gate City Medical College of Texarkana, Texas.

New Colleges.—Besides the new colleges formed by mergers as noted above, during the year two colleges have been established. These are the College of Medicine of the University of South Dakota and the College of Medicine of the University of Wisconsin. The California Medical College of San Francisco, which was suspended in 1906, was reorganized at Los Angeles last fall under the name of the California Eclectic Medical College.

Medical Graduates Holding Baccalaureate Degrees.—Reports from the various colleges show that of the 4,741 medical graduates in 1908 at least 820, or 17.3 per cent., were also graduates of colleges of liberal arts as compared with 18 per cent. last year.

Advance in Entrance Requirements.—There are 11 medical colleges which already require for admission two or more years of work in a college of liberal arts. These colleges and the dates when the requirement began are as follows:

College.	Began.
Johns Hopkins University, Medical Department	1893
Harvard Medical School	1900
Western Reserve University, Medical Department	1901
Rush Medical College	1904
University of California	1905
University of Minnesota, College of Medicine	1907
University of Minnesota, Homeopathic Department	1907
University of North Dakota, College of Medicine	1907
University of Wisconsin, College of Medicine	1907
Cornell University, Department of Medicine	1908
Wake Forest School of Medicine	1908

Fifteen other medical colleges have definitely announced an increase in their entrance requirements to two or more years of work in a college of arts. These colleges and the dates when the requirement will become effective are as follows:

College.	Begins.
Yale Medical School	1909
George Washington University	1909
Northwestern University Medical School	1909
University of Kansas, School of Medicine	1909
University of Michigan, College of Medicine	1909
American Medical Missionary College	1910
University of Colorado School of Medicine	1910
State University of Iowa, College of Medicine	1910
Drake University Medical College	1910
John A. Creighton Medical College	1910
College of Physicians and Surgeons of New York	1910
Syracuse University Medical Department	1910
University of Pennsylvania, Medical Department	1910
University of Utah, Medical Department	1910
University of South Dakota College of Medicine	1910

The twenty-six following schools either already require one year of work in a college of arts devoted to physics, chemistry and biology, in addition to a four-year high school education, or have announced their intention to do so on or before the year given:

College.	In force.
University of Missouri, Medical Department	1906
University of Nebraska, Coll. of Med	1908
St. Louis University, Medical Department	1909
University of North Carolina, Medical Department	1909
Cooper Medical College	1910
Oakland College of Medicine and Surgery	1910
University of Southern California, Coll. of Med	1910
Georgetown University, Medical Department	1910
College of Physicians and Surgeons, Chicago	1910
Hahnemann Medical College, Chicago	1910
Indiana University, School of Medicine	1910
Tulane University of Louisiana	1910
College of Physicians and Surgeons, Baltimore	1910
University of Mississippi, Medical Department	1910
Washington University, Medical Department	1910
Medical College of Ohio	1910
Miami Medical College	1910
Starling-Ohio Medical College	1910
Cleveland Homeopathic Medical College	1910
Cleveland Coll. of P. and S.	1910
University of Oklahoma, Medical Department	1910
University of Oregon, Medical Department	1910
University of Texas, Medical Department	1910
University of Virginia (3 years high school and 2 years University)	1910
University of West Virginia	1910
Wisconsin College of Physicians and Surgeons	1910

Practically all these schools have expressed their intention to require that the work in physics, chemistry and biology be taken in a college of liberal arts.

About twelve medical colleges expressed their intention to make this increase in preliminary requirements, some of which were omitted because they have made no mention of such in their printed announcements. The others were omitted because it was found by inspection they were not satisfactorily equipped to teach medicine.

State Board Requirements of Preliminary Education.—It should be noted that five state boards have adopted a requirement of one or two years' work in a college of liberal arts. These states are as follows:

State Examining Board of	No. of years Required.	Affects Students Matriculating.	Affects All Applicants After
Minnesota	2	1908-9	1912
Connecticut	1	1908-9	1912
North Dakota	2	1907-8	1911
South Dakota	1	1906-7	1910
Colorado	1	1908-9	1912

Educational Standards and Pseudomedical Colleges.

The following statements in regard to the various systems of pseudomedicine given by Dr. F. M. Crandall a few years ago show the necessity of having one standard of admission to the practice of medicine with no special standards or laws for different sects or systems. While the remarks[1] refer particularly to the situation in New York at the time that state was striving for their present medical practice act, they will apply equally well to the problems of other states:

"The most strenuous work of recent years has consisted of opposition to the demands of various systems of pseudomedicine. These systems are nothing more or less than levers and sledge hammers seized upon as the most effective means of breaking through the medical laws. And here we come upon a subject upon which there is much misapprehension. The medical laws are but a part of the general educational laws of the state. These laws are wide in their application, and cover many professions and diverse conditions. There is nothing exceptional in the laws covering medical practice. They are at the farthest possible remove from class legislation. They are simply a part of the great educational system of the state. The medical profession has upheld the hands of the state educational authorities, whose aim has been to enact a broad and consistent system of just and equitable laws. A state educational system has, therefore, been built up, of which the laws controlling medical practice are an integral part.

POSITION OF THE MEDICAL PROFESSION.

"The position of the medical profession is often misunderstood, and their arguments have frequently been misjudged. The opposition of physicians to attempts to destroy the medical laws is often attributed to a spirit of trade unionism. This is controverted by the single fact that no attempt is made by the profession to curtail the practice of medicine by competent men. It is one of the fundamental principles that every man and woman exhibiting proper qualifications should be admitted to practice. Our opposition to pseudomedicine is, and should be, educational, not professional. We do not try to raise barriers against practitioners because they use a special system or adopt certain remedial measures. We do not oppose certain prevalent isms because of their methods of treatment, but because they are new and very clever manifestations of the old, old scheme to get within the medical fold without expending the time and money necessary to make a competent practitioner. The various sytems of pseudomedicine are not pushed forward year after year with such determination because men so love this or that particular form of treatment, but because they offer the most promising means of evading the requirements of preliminary education, four expensive years in the medical college, a state examination, and then, perhaps, two years of unpaid service in a hospital. It is the educational question that is at the bottom of every one of these modern isms, and they are the more aggressive, as the educational barriers are raised higher. It is upon educational, not professional grounds that we oppose them.

TREAT ALL ALIKE; NO SPECIAL FAVORS.

"The medical profession approves the system which requires the same general professional education of all its members. The specialist upon the eye and the specialist upon the throat, the physician and the surgeon, must each undergo the same training and must pass the same state examination. One may select any specialty he chooses and may adopt any method of treatment which his educated judgment dictates. He may use large doses or small, massage or electricity. What the state requires for one body of practitioners it should not abate in favor of another.

AN ADEQUATE TRAINING REQUIRED.

"We have one sound reason for opposing these systems which permit an abbreviated education, and one argument that no man can gainsay. We may properly demand that every man and woman who enters upon the practice of the healing art should have adequate education. Here we are on ground that can not be misjudged or misrepresented. We ask no favors or special privileges. We are not the ones who are seeking to bring half-educated practitioners in by the back door. We simply ask equal requirements for all. Our position is, that those who seek to treat disease should go in through the same door, and a few should not be permitted to crawl in through holes and underground passages. We simply ask for an American square deal and equal rights for all."—*N. Y. and Phila. Med. Jour.*

1. Reprint, Journal of the Med. Soc. of N. J., January, 1906, p. 247.

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[*For other information see second page following reading matter*]

SATURDAY, AUGUST 15, 1908.

MEDICAL TRAINING AND INTELLECTUAL INFLUENCE.

The recent issue of the life of Rabelais[1] in the French Men of Letters series, makes available in English an excellent study of the career of this famous physician, whose contributions to literature and to education stamp him as one of the leaders in thought of a period especially fruitful in eminent men. Everyone knows in general what a wonderful group of men made their appearance in Europe during the early sixteenth century, but not many realize how much the thinking of these men meant for the generations after them, even our own. Probably only those who have been especially interested in history appreciate that so many of the names we ordinarily consider among the greatest in the intellectual life of modern times are to be found in this period, and that not a few of them belong to men trained by medical study and practice. James Russell Lowell, using a medical simile, once said that a case of immortality in a family was so common during the sixteenth century in Europe, that like measles almost any family might expect to have one or more attacks of it. Though we are not apt to think of medicine as producing great men quite so early in modern history as this, there is probably no equal period in human history so crowded with them.

Rabelais was born in 1492, an important year for America, the one, also, which saw the birth of Paracelsus, who lived until about the middle of the sixteenth century. Rabelais' life, therefore, runs contemporary with the closing years of Columbus, the navigator, but also with those of another Columbus, to whom the Italians refer the discovery of the circulation in the lungs, and who was born at the beginning of the sixteenth century. A still more distinguished colleague was Vesalius, the "father of anatomy." Then there was Servetus, the first to publish a complete description of the pulmonary circulation, and many others of scarcely less note. Such men as Berengar, of Carpi, who first described the vermiform appendix, Varolius, Cæsalpinus, to whom the Italians attribute the discovery of the general circulation before Harvey, Sylvius, Fabricius, the teacher of Harvey—all were living during Rabelais' time. Medical science indeed, in our modern sense of the term, had its greatest uplift just at this period. It is not surprising then to find that a man who was educated in medicine at Paris, but received his doctorate degree at Montpellier, who had traveled in Italy and was acquainted with most of the great Italian discoverers, should have had the originality of mind to write in the form of a satire the most common sense ideas with regard to education that had ever been uttered up to this time.

It is because Rabelais represents the result of the medical influences of his time in molding his intellect, that he can scarcely help but be interesting to modern educated physicians. His work was unfortunately disfigured by many vulgarities, though that was the custom of the times, and as we well appreciate, manners are not morals, and a time that is very squeamish about its modes of expression may be far from circumspect in its actions. Rabelais contributed nothing to medicine itself and indeed seems to have practiced comparatively little. His philosophy of life and of education, however, can not fail to have been profoundly modified by his long and arduous medical studies, and his books undoubtedly represent what a trained physician of his time had to say about many subjects. If sometimes the language of them is couched in terms that suggest the physiology and pathology of human nature, rather than its intellectuality and spirituality, this will surely be passed over for the sake of the nucleus of profound thought which they contain and which the more serious study of the recent time has brought out so clearly.

Mr. Tilley emphasizes especially Rabelais' contribution to the science of education. "Rabelais' medical experience and the importance which he attached to health—'without health life is no life,'" he says in the prologue to the fourth book, "led him to pay special attention to the care of the body, while to his interest in science is due perhaps the most original contribution to the subject—his insistence on the cultivation of the powers of observation. On the whole his scheme (of education) is remarkable for its large mindedness, its good sense, its freedom from those fads and prejudices to which educationalists of all ages have been prone, rather than for any subtle or deep insight into the human mind."

While aiding in the simplification and perfecting of general education, Rabelais was not without suggestive hints for medical education. As might be expected of one living at a time when a certain exaggerated notion of the value of Greek contributions to every form of thinking was common, he suggested that students should devote themselves to the old-time masters of medicine, but he also insisted on the necessity for personal observation on the human body. In a famous letter from Gargantua to his son the following passage is noteworthy:

"Then go over again the books of Greek, Arabian and Latin physicians, not despising the Talmudists and

1. François Rabelais, by Arthur Tilley, A.M., Philadelphia, J. B. Lippincott Co., 1907

Cabalists; and by frequent dissections acquire perfect knowledge of the other world, the microcosm which is man." This colleague of the Renaissance is evidently deserving of more than the attention that certain objectionable features of his works now bring him.

CATARRHAL JAUNDICE.

The pathogenesis of icterus has been a continually debated subject, and although there is now general acceptance of the view that in nearly all, and perhaps in all cases, there is some form of obstruction to the escape of bile, yet the mechanism and cause of the obstruction are not always clear. If the icterus is transient and not accompanied by severe constitutional symptoms the usual assumption is that an inflammatory process in the duodenum has extended into the ampulla of Vater, which becomes closed either by the swelling of the mucosa or by a plug of thick mucus, hence the term "catarrhal jaundice." The general acceptance of this view is probably due to the observation by Virchow in a case of this kind that came to autopsy, in which it was found that a duodenal inflammation had extended along the bile ducts to the liver, and had resulted in the formation of a mucus plug in the ampulla which was sufficient to withstand the feeble pressure of the bile. A few others, among them Osler, have observed similar conditions in "catarrhal jaundice."

Opportunities to examine thoroughly at autopsy the conditions existing in so-called catarrhal icterus without complicating processes are of necessity rare, because of the mildness of the results of the uncomplicated disease, and hence our exact knowledge on this subject is as inconsiderable as our speculations have been extensive. Eppinger[1] recently secured such an opportunity, and the results of his studies are very interesting and suggestive. A girl of 19 was examined clinically on the eighth day of what was a typical attack of catarrhal icterus, with the usual history of the jaundice following an acute gastroenteritis from dietary causes. On the following day she fell from the third story of a building and was instantly killed. The gall tracts were found somewhat distended, and pressure on the gall bladder did not force the bile through the ampulla into the duodenum. Microscopic study of the part of the common duct which lies within the wall of the intestine showed that the very complete occlusion was due to a hyperplastic condition of the lymphoid tissue of the mucosa of the duct. Study of normal specimens showed that, normally, there are islands of lymphoid tissue in the wall of the duct, surrounding the submucous glands, and developed to varying extent in different specimens. This lymphoid tissue with the embedded mucous glands is believed by Eppinger to be analogous to the tonsils, and located at the end of the bile tract as a means of defense against bacterial invasion from the intestine. Just as with the tonsils, this adenoid tissue is subjected to anginal attacks with swelling, which result in occlusion of the duct and jaundice. On this basis epidemics of catarrhal jaundice may be considered as analogous to epidemics of tonsillitis, and the tendency of some young people to attacks of transient jaundice without evident cause may be ascribed to a "lymphatic constitution."

These observations fall into line with the views of those who hold that the rich lymphoid apparatus of the vermiform appendix indicates a relationship of this organ to the tonsils, and that anginal swelling of the circularly disposed lymphoid tissue of the appendix may be a cause of acute appendicitis through the occlusion of the lumen and the interference with blood supply. Eppinger does not imply that all cases of transient icterus are due solely to lymphoid hyperplasia, for there can be no doubt that acute inflammatory processes do extend from the duodenum along the common duct and lead to simple inflammatory swelling, or to over-secretion of mucus with resulting occlusion; nevertheless, the suggestion that angina-like attacks of lymphoid swelling may be a cause of some of the epidemic forms of jaundice, and as an explanation of the particular tendency of certain individuals to icteric attacks, contains much that seems reasonable and suggestive.

1. Wien. klin. Wchnschr., 1908, xxi, 480.

STATES, MUNICIPALITIES AND MEDICAL EDUCATION.

For many years certain states have had medical departments connected with the state universities. The opinion that the proper training of physicians is a function which the state should assume has been rapidly spreading, since of the twenty or more state universities which now have medical departments no less than nine have been established during the last five years. During this same time, state legislatures have made large appropriations for medical buildings, equipment and hospitals. It now appears that a large city is about to assume a like responsibility. Three cities have long supported colleges of liberal arts which were under city control and largely supported by municipal taxation, these being the College of Charleston, South Carolina, opened in 1791; the College of the City of New York, opened in 1849, and the University of Cincinnati, opened in 1874. None of these institutions, however, has had medical departments until the one recently established in the University of Cincinnati by the merger of the Medical College of Ohio and the Miami Medical College, as announced a few weeks ago.[1]

The recent session of the Ohio legislature authorized Cincinnati to appropriate funds for building and equipping the colleges of the university, including the medical, in the discretion of the mayor and the city council. The management of all the scientific work of the hospitals of

1. The Journal A. M. A., July 11, page 152.

the city has been placed in the hands of the university by the board of public service and now that the two medical colleges above referred to have united in the university, the entire medical service of the city hospital will be placed under the direction of the university. A large new city hospital is being erected and the university has already taken steps to erect medical college buildings in connection with the hospital. The pathologist of the city hospital will also be the professor of pathology of the new medical school.

Cincinnati occupies a unique position, therefore, in both controlling and supporting a medical college. That city is planning to put its medical college on a high plane and will then make it responsible for the proper care of the city patients. Under the circumstances it seems to be an advantageous arrangement not only for the city and for the sick poor, but for medical education as well. The future development of the new medical college at Cincinnati will be watched with interest.

MEDICAL EDUCATION IN THE UNITED STATES.

STATISTICS FOR THE COLLEGE YEAR 1907-8.

The tabulated statistics herewith presented (pages 586 to 591) are for the year ending June 30, 1908, and are based on signed reports received directly from the medical colleges, or from other reliable sources. We wish here to acknowledge the courtesy and cooperation on the part of the medical colleges which have made the compilation of these complete statistics possible.

STATISTICS OF COLLEGES.

On pages 586 and 587 is Table 1, which gives all the colleges in session during 1907-8, the population of the city in which each college is located, the number of students, men and women, registered during the year, the number of 1908 graduates, men and women, the number of teachers for each college and the number of weeks of actual work in the college year. Beginning on page 575 are given essential facts of all medical colleges, arranged by states, and on pages 585, 590, 591 and 603 will be found the requirements of the different college associations, together with lists of colleges belonging to these organizations.

NUMBER OF MEDICAL STUDENTS.

The total number of medical students (matriculants) in the United States for the year ending June 30, 1908, was 22,602, a decrease of 1674 below 1907, and a decrease of 2,602 below 1906. It is the lowest number since THE JOURNAL began compiling these statistics in 1900. Of the total number of students, 20,936 were in attendance at the regular schools, 891 at the homeopathic, 479 at the eclectic, 90 at the physiomedical, and 206 at the unclassifiable schools. The attendance at the regular schools shows a decrease of 1,367 below that of last year, of 2,180 below 1906, and of 3,183 below 1905. In the homeopathic schools there was a decrease of 148 below the attendance of 1907, of 194 below 1906, and of 213 below 1905. The eclectic schools show a decrease of 66 since 1907, of 165 below 1906, and of 99 below 1905. The physiomedical colleges had 90 this year as compared with 97 in 1907, 110 in 1906, and 114 in 1905.

TABLE 5.—MEDICAL COLLEGE ATTENDANCE.

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med.	Nondescript.	Total.
1880.....	9,776	1,220	830	.....	.....	11,826
1890.....	13,521	1,164	719	.....	.....	15,404
1900.....	22,710	1,909	552	.....	.....	25,171
1901.....	23,846	1,683	634	80	144	26,417
1902.....	24,878	1,617	765	91	150	27,501
1903.....	24,971	1,498	848	125	173	27,615
1904.....	23,662	1,309	1,014	123	234	28,142
1905.....	24,119	1,104	578	114	232	26,147
1906.....	23,116	1,085	644	110	249	25,204
1907.....	22,303	1,039	545	97	292	24,276
1908.....	20,936	891	479	90	206	22,602

GRADUATES.

The total number of graduates for the year ending June 30, 1908, was 4,741, a decrease of 239 below 1907, of 623 below 1906, and of 859 below 1905. The percentage of graduates to matriculants was 21.0, as compared with 20.5 in 1907, and 20.5 in 1906. The number graduated from the regular schools was 4,370, or 221 less than in 1907 and 471 less than in 1906. From the homeopathic colleges there were 215 graduates, or 10 less than 1907 and 71 less than in 1906. The eclectic colleges graduated 116, or 7 less than last year and 70 less than in 1906. The physiomedical schools had 12 graduates this year as compared with 11 last year and 22 in 1906.

TABLE 6.—MEDICAL COLLEGE GRADUATES.

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med.	Nondescript.	Total.
1880.....	2,763	380	188	.....	.....	3,241
1890.....	3,853	380	221	.....	.....	4,454
1900.....	4,715	413	86	.....	.....	5,214
1901.....	4,879	387	148	18	12	5,444
1902.....	4,498	336	138	16	11	4,999
1903.....	5,088	420	149	24	17	5,698
1904.....	5,190	371	146	20	20	5,747
1905.....	5,126	276	153	22	23	5,600
1906.....	4,841	286	186	22	29	5,364
1907.....	4,591	225	121	11	32	4,980
1908.....	4,370	215	116	12	28	4,741

WOMEN IN MEDICINE.

During the past year there were 835 women studying medicine, or 3.7 per cent. of all medical students as compared with 3.8 per cent. in 1907. There were 185 women graduates this year, or 3.9 per cent. of all graduates. In 1907 there were 928 women students and 211 graduates, while in 1906 there were 895 women students and 233 graduates. Of all the women matriculants, 186 (22.3 per cent.) were in attendance at the three medical colleges for women, as compared with 210 (22.6 per cent.) in 1907, and 189 (21.0 per cent.) in 1906. From the three women's colleges there were 46, or 24.9 per cent. of all women graduates as compared with 39 (18.5 per cent.) in 1907. The remaining 649 (77.7 per cent.) were matriculated in coeducational colleges.

TABLE 7.—WOMEN IN MEDICINE.

Year.	Total women students.	Percent. of all students, both sexes.	Total women graduates.	Percent. of grads., both sexes.	Women's colleges.	Students.	Percent. of all women students.	Graduates.	Percent. of all women graduates.	Co-ed. schools.	Students.	Percent. of women students.	Graduates.	Percent. of all women graduates.
1904	1,129	4.3	244	4.0	3	183	16.2	56	23.0	97	946	83.8	198	77.0
1905	1,073	4.1	219	4.0	3	221	20.6	54	24.5	96	852	79.4	165	75.5
1906	895	3.5	233	4.3	3	189	21.0	33	14.1	90	706	79.0	200	85.9
1907	928	3.8	211	4.2	3	210	22.6	39	18.5	86	718	77.4	172	81.5
1908	835	3.7	185	3.9	3	186	22.3	46	24.9	88	649	77.7	139	75.1

NUMBER OF COLLEGES.

During the past year seven colleges (mentioned on page 603) have been suspended and seven lost their identity through mergers. Three new colleges were formed by the merging of others, however, and two new colleges were established, making a net decrease of nine colleges since last year, the total now being 152. The regular schools number 123, a decrease of eight since last year. The homeopathic schools number 16, a decrease of 1. The eclectic colleges have 8, the same number as last year, and the physiomedical colleges have decreased by one, there being now only 2, while there are now 3 nondescript schools which offer to teach all systems of medicine.

TABLE 8.—MEDICAL COLLEGES.

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med.	Nondescript.	Total.
1880.....	72	12	6	.....	.....	90
1890.....	93	14	9	.....	.....	116
1900.....	121	22	8	.....	.....	151
1901.....	124	21	10	2	2	159
1902.....	121	20	10	3	1	155
1903.....	121	19	10	3	1	154
1904.....	133	19	10	3	1	160
1905.....	129	18	9	3	1	160
1906.....	130	18	9	3	1	161
1907.....	131	17	8	3	2	161
1908.....	123	16	8	2	3	152

LENGTH OF TERMS.

The length of the terms of the same colleges fluctuates somewhat from year to year, but on the whole there has been a lengthening of college terms. This has reference to the weeks of actual work, exclusive of holidays. Only 2 colleges this year report sessions shorter than twenty-seven weeks, as compared with 6 in 1907 and 14 in 1906. In 1901 there were 58 which held sessions of less than twenty-seven weeks. Of those having sessions of twenty-seven or twenty-eight weeks, the number is 21 this year, or 6 less than last year, and 25 less than in 1903. There are now 26 colleges claiming courses of twenty-nine or thirty weeks of actual work, or 2 more than in 1907, and 51 claiming courses of thirty-one or thirty-two weeks, or 9 more than 1907. Forty-six colleges require from thirty-three to thirty-six weeks, a decrease of 12 since last year. The 4 colleges claiming courses longer than thirty-six weeks are night schools. It would apparently require twelve or fourteen years of the usual night school study, however, to secure the equivalent of four years of thirty weeks each in our better day colleges. Omitting the four night colleges there are 97, or 63.8 per cent. of all colleges, which claim more than thirty weeks of actual work as compared with 100, or 62.1 per cent. of all colleges in 1907.

TABLE 9.—COLLEGE TERMS.

Year.	23 to 26 weeks.		27 to 28 weeks.		29 to 30 weeks.		31 to 32 weeks.		33 to 34 weeks.		35 to 36 weeks.		Ov. 36 Weeks	
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
1901	58	36.5	42	26.4	8	5.0	26	16.4	4	2.5	18	11.3	3	1.9
1902	44	28.4	44	28.4	11	7.1	33	21.3	3	1.9	18	11.6	2	1.3
1903	33	21.4	46	29.9	15	9.7	37	24.0	2	1.3	19	12.4	2	1.3
1904	27	16.3	44	26.5	22	13.3	37	22.3	13	7.8	20	12.0	3	1.8
1905	15	9.4	35	21.8	12	7.5	44	27.5	13	8.1	38	23.8	3	1.9
1906	14	8.7	35	21.7	26	16.1	32	19.9	24	14.9	28	17.4	2	1.3
1907	6	3.7	27	16.8	26	16.1	42	26.1	29	18.0	29	18.0	2	1.3
1908	2	1.3	21	13.8	28	18.4	51	33.6	24	15.8	22	14.5	4	2.6

POPULATION OF COLLEGE CITIES.

Of the 144 colleges that had graduates 96, or 66.7 per cent., are located in cities of 100,000 or greater population and these colleges had 3,650, or 77.2 per cent. of all graduates of 1908, while the 48 schools located in cities of less than 100,000 had 1091, or 22.8 per cent. of all graduates. In cities of less than 50,000 there are 31 medical colleges which had 595 graduates in 1908, while 8 colleges having 144 graduates in 1908 are located in cities having less than 10,000 population.

DISTRIBUTION OF MEDICAL STUDENTS.

Table 2 on pages 588 to 591 shows from what states the students come who were in attendance at each medical college during the session of 1907-8. The influence of the proximity of the medical school is seen in the fact that states having medical colleges contribute more students in proportion to the population than those which have no colleges. A comparison of this table with the large tables based on state board examinations,[1] which show the distribution of the alumni of each college, is interesting. The college which has a widely distributed alumni has also a student body from an equally large number of states.

Only two states contributed over 2,000 students each this year, these being New York with 2,116 and Pennsylvania with 2,104. Illinois, which last year contributed 2,126, contributed only 1,749 this year. The next states in the order of the number of students contributed are Missouri, 919; Ohio, 912; Texas, 874, and Massachusetts, 860. Three states had less than 20 each, these being Wyoming, 6; Nevada, 8, and New Mexico 11.

MEDICAL STUDENTS AND GRADUATES FOR EIGHT YEARS.

Table 3, on pages 592 and 593, shows the students and graduates for each college for each of the past eight years, as well as the totals of students and graduates and

1. JOURNAL A. M. A., May 30, 1908, pages 1848 to 1863.

the average proportion of graduates to students. Many interesting points are brought out by this table. The fluctuation in the attendance on each college is shown and in some of the leading colleges the time when changes in entrance requirements were made are indicated by marked fluctuations in the number of students.

PROPORTION OF GRADUATES TO MATRICULANTS.

The proportion of graduates to matriculants is especially interesting. If a college continued a three-year course, about one-third or 33.3 per cent. of the entire student body would graduate each year, the other 67 per cent. being supposedly in the junior and middle classes. For the four year course with its four classes, one class, or about 25 per cent. of all matriculants, would graduate each year. This would be the percentage, doubtless, for each college at the present time if every student who matriculated in a college remained in that college four full years and then graduated. There are numerous factors, however, which tend to alter the percentages of graduates of each college.

The average proportion of graduates to matriculants each year for all colleges is 20.4 per cent., instead of 25, which shows that only about 4 out of every 5 students who matriculate continue until they graduate. In this number which do not graduate may be included those who go into other lines of activity, those who take special courses, and those deceased.

CAUSES OF FLUCTUATION IN PERCENTAGES.

The percentages of the individual colleges fluctuate for various causes. A high-grade college located in a small city may have many matriculants and yet have a low percentage of graduates, showing that the students seek the larger cities for their final or clinical years in medicine. This would also result in a higher percentage of graduates for colleges in the large centers of population. The percentage of graduates is seen to be low for colleges in Arkansas and other states where undergraduates are allowed to take the state examination for license to practice medicine. There are 20 colleges for which the average percentage of graduates each year was less than 15 per cent. of all matriculants and four of these had less than 10 per cent. of graduates each year.

Eighteen colleges had an average percentage of graduates each year of over 25 per cent. and four of these graduated over 30 per cent. of all matriculants, two of these schools being in Chicago and two in Baltimore, the percentages of these being 31.1, 31.4, 33.6 and 33.9.

Only four colleges had over a thousand graduates in the eight years, these being the College of Physicians and Surgeons of Chicago, 1,533; Jefferson Medical College, Philadelphia, 1,208; Rush Medical College, Chicago, 1,152, and the College of Physicians and Surgeons of New York, 1,147. There are 21 medical colleges which had over 500 graduates in the eight years, while there are 34 colleges which had less than 100 graduates. This does not include the colleges not granting medical degrees, nor a number of colleges which have become extinct, and which have been grouped with "miscellaneous colleges."

LIST OF EXISTING AND EXTINCT MEDICAL COLLEGES.

Table 4, on pages 594 to 602, gives a complete list of all colleges existing and extinct. Part I gives the existing colleges, the year when each was organized under its present title, the year the first class graduated, the years, if any, when no classes graduated, reference to previous titles if there were such, the name of the dean or secretary, and the dates when the next session begins and ends. Part II gives all colleges which are extinct, or which have ceased to exist under the title given, together with the year each was organized, the year the first class was graduated, the years, if any, when no classes graduated, the year when the last class graduated, the year when the school ceased to exist, and reference to any other titles. By means of these tables an institution's life history under several titles can be readily traced. For example, Part II, No. 85, is the Central College of Physicians and Surgeons, which was organized in 1879, the first class graduated in 1880, and classes were graduated in all subsequent years to and including 1905, when it merged with (II, 103) the Medical College of Indiana to form (II, 99) the Indiana Medical College which in turn graduated classes in 1906, 1907 and 1908, when it merged in (I, 138) the Indiana University School of Medicine.

FRAUDULENT COLLEGES.

In the "remarks" column reference is made to all schools which have been reported as fraudulent, or disreputable, or to other items which are important. Where further description has been necessary letters in brackets (a), (b), etc., have been added, which refer to footnotes giving such description.

The list contains the names of many colleges regarding which complete information has not been received and which may be unobtainable. If any of our readers can help us complete the data, we will be under great obligations.

FORMER SOURCES OF INFORMATION.

The chief sources of information regarding medical colleges of the United States prior to 1890 are the invaluable reports issued under the direction of Dr. John Rauch, who was then secretary of the Illinois State Board of Health. The United States Bureau of Education's reports since 1890 have contained fairly complete lists of medical schools together with much important data. Reports of the New York Education Department likewise furnish much valuable information. Beginning with and since the college session of 1900-1901, THE JOURNAL has been publishing complete statistics, to which, since 1905, have been added the special researches of the Council on Medical Education.

COLLEGE MERGERS AND THE KENTUCKY PROBLEM.

Eighteen months ago Louisville had five regular medical colleges—the Hospital College of Medicine, the Kentucky School of Medicine, the Kentucky University Medical Department, the Louisville Medical College, and the University of Louisville Medical Department. A year ago the Kentucky University Medical Department merged into the University of Louisville and a little later the Louisville Medical College and the Hospital College of Medicine merged under the name of the Louisville and Hospital Medical College. Thus there remained three colleges which have since[1] merged, retaining the name of the University of Louisville Medical Department. In an effort to have the college thus formed become the Medical Department of the Kentucky State University, a conference was held July 17 in Lexington with the trustees of the Kentucky State University.[2] At this conference objection was made to having a medical department in any city other than the seat of the university. This is the same difficulty which came up with the universities of California, Kansas, Maine, Nebraska, North Carolina and Indiana in establishing their medical departments, as well as in the establishment of a medical department of Cornell University in New York City. In California, Kansas, Maine, Nebraska and North Carolina the problem was solved by offering the first two years of the medical course at the seat of the university and the clinical years in the largest city in each state. Cornell University adopted the plan of giving the work of the first two years both at Ithaca and at New York City, but all the clinical work was to be taken at the latter place. Indiana University followed the Cornell plan and the student may take the first two years either at Bloomington or Indianapolis, but his clinical years must be taken at Indianapolis. In all these mergers, the results of which have been favorably reported, the advantage of having the clinical work at the largest city in the state seems to have more than offset the disadvantage of having a part or all of the medical work in a city other than the seat of the university.

CHOLERA IN THE VOLGA VALLEY.

A recent press report of the outbreak of cholera involving the valley of the Volga from Nijni Novgorod to the mouth of the river, indicates the vast progress made during recent years in the care of the public health. We learn that isolation hospitals have been established along the river, and a floating hospital and inspection steamers are commissioned. The local quarantine method will not be adopted, but isolation of patients, attendants, contacts and suspects will replace it. Measures such as these, as we found in the last New Orleans yellow fever epidemic, are calculated to allay rather than to excite panic—and panic itself, by depressing the vitality, becomes a predisposing cause, thus tending to increase the epidemic in both extent and severity. It is not surprising to learn that with such enlightened measures, even the superstitious Russian peasantry, who on former occasions, by their hostility toward the medical officers, have added to the natural difficulties attendant on an epidemic, are now learning to cooperate with the authorities.

1. THE JOURNAL A. M. A., Aug. 8, p. 506.
2. THE JOURNAL A. M. A., July 25, p. 325

Medical News

DISTRICT OF COLUMBIA.

Tuberculosis Camp.—An open-air tuberculosis camp was opened by the American Red Cross Society on the grounds of the new Tuberculosis Hospital, August 8. The camp is well equipped and is in charge of the Visiting Nurses' Society.

Postage on Medicine.—By a decision of the postmaster general, packages of medicine bearing written directions for taking are subject to the first-class rate of postage on the ground that written directions are not permissible additions to fourth-class mail matter under the law.

Health Report.—The weekly health and mortality record for the week ended August 1 shows that there were 116 deaths, of which 61 were white and 55 colored. Of the 119 births, 77 were white and 42 colored. The number of cases of measles decreased from 103 to 56, and those of chicken-pox from 163 to 34. Typhoid fever shows an increase, there being 33 new cases and 6 deaths.

New Assembly Hall.—Work has been commenced on a new assembly hall at the Government Hospital for the Insane. The building is designed to provide modern facilities for theatrical productions and other entertainments and to afford proper quarters for religious worship. The building will be completed about June 1, 1909, at an approximate cost of $96,000. The seating capacity of the amusement hall will be 1,000.

New Hospital Opened.—The Municipal Tuberculosis Hospital at Fourteenth and Varnum Streets, N.-W., Washington, was opened June 27 by a public reception. Dr. Percy G. Smith, superintendent of the hospital, headed the reception committee. The hospital has cost about $100,000 and will accommodate 120 patients. An innovation in tuberculosis hospital construction in this institution is the idea suggested by Dr. George M. Kober of putting the open wards on the upper story instead of grouping them round the base of the building.

ILLINOIS.

Hospital Dedicated.—The new St. James Hospital, Pontiac, erected at a cost of about $100,000, was dedicated July 19 with appropriate ceremonies.

Tuberculosis Infirmary Plans Approved.—The plans for the tuberculosis infirmary on the grounds of Cook County Hospital have been approved by the county board. The building is to be 158x124 feet, five stories in height for the main building and four stories in height for the wings. The top floor of the former and the roofs of the latter are to form sun parlors and exercising grounds for the patients. The building is estimated to cost $300,000, and will accommodate 320 patients.

Tuberculosis Exposition.—The Peoria Society for the Prevention of Tuberculosis, with the aid of the national society, held a tuberculosis exposition at Peoria, July 27 to August 6, inclusive, at which there was an average attendance of nearly 700 a day. Each evening lectures were given and lantern slides shown. Among the interesting features were maps showing the location of each death from tuberculosis for the last 15 years, and daily exhibits showing the amount of tuberculous meat condemned at the local slaughter-houses by government inspectors. Dr. Sumner M. Miller is president of the society, and Dr. Jay H. Bacon, secretary.

Chicago.

Free from Smallpox.—For the first time this year the Isolation Hospital is reported as having no tenant, and it is now undergoing a thorough disinfection.

Children of the Poor Healthy.—It is reported that out of 16,586 children examined by the 78 medical inspectors of the health department since July 20 only 281 were found to be ill.

Communicable Diseases.—During the week ended August 8, 264 cases of communicable disease were reported, distributed as follows: Diphtheria, 51; scarlet fever, 40; measles, 15; chickenpox, 10; typhoid fever, 76; whooping cough, 40; pneu-

monia, 10; tuberculosis, 25, and diseases of minor importance, 6.

Deaths of the Week.—The total number of deaths from all causes for the week ended August 8 was 657, or 47 more than for the preceding week and 11 more than for the corresponding week of last year. Of the deaths 212 were caused by acute intestinal diseases; 48 by tuberculosis; 41 by violence (including suicide); 36 by nephritis, and 35 by heart disease.

Hot Weather Care of Children.—The Chicago department of health has issued a circular entitled "Hot Weather Care of Children," in which the important features of instruction are as follows: Avoid overfeeding; avoid improper foods; avoid improper milk; avoid pacifiers; give baby a drink of water; avoid heavy clothing; keep baby in open air; give baby bath; let baby sleep alone, and do not drug the baby.

Personal.—The degree of D.Sc. was conferred on Dr. John B. Murphy by Sheffield University at the recent meeting of the British Medical Association.——Dr. Carl Beck returned from Europe July 29.——Dr. Hyman Cohen has been appointed chief disinfector of the health department, vice Dr. Charles W. Behm, deceased.——Dr. Eugene O. Christoph has resigned from the staff of St. Bernard's Hospital.——Dr. and Mrs. Walter H. Allport have sailed from Liverpool on their return from Europe.

Hospital Notes.—The outdoor performance at Ravinia Park last week netted a little more than $1,000 to the funds of the Tribune Summer Hospital.——An addition to cost $200,000 is to be made to the Hospital of St. Anthony of Padua. The principal addition will be a five-story fireproof building 112x50 feet.——The building and land for Iroquois Memorial Emergency Hospital No. 1 has been acquired at 87 Market Street. The land has been leased for ninety-nine years at an annual rental of $1,800, and the three-story building on the lot will be remodeled for hospital purposes at an expense of from $10,000 to $25,000.

Visit to Ottawa Tent Colony.—On August 2 a party of about 80 members of the Chicago Medical Society, and ladies, accepted the invitation of Drs. James W. Pettit and Everett H. Butterfield, medical directors of the Ottawa Tent Colony for Tuberculosis, to make a visit of inspection and entertainment. After investigation of the colony near Ottawa, a picnic lunch was served on the bluff before the river trip to Horseshoe Canyon and Starved Rock, at which dinner was served. Other points of historic or esthetic interest were also visited, and the party returned to Chicago the same evening.

Hospital Notes.—By a baseball game July 22 more than $1,000 was netted for the Chicago Union Hospital.——The Deaconess Training School and Wesley Hospital have each been bequeathed $1,000 by the will of the late Mrs. Eugenia Shumway, Polo.——The Chicago Tuberculosis Sanitarium at Winfield, on an elevation fronting the DuPage River, will be open in about six weeks. Dr. Theodore Sachs will head the medical staff, and the institution is being established under the auspices of the women of the Chicago Jewish Club.——Cook County Hospital has acquired a strip of land 16 feet wide and 550 feet long for $9,720, and by this purchase is now the owner of the entire block on which the hospital is located.

INDIANA.

Charges Withdrawn.—The charges filed before the State Board of Medical Registration and Examination against J. W. White, Indianapolis, by Dr. Hugh A. Cowing, Muncie, were withdrawn July 14. Dr. White was charged with giving aid to an illegal practitioner known as "the boy wonder"; and the reason for the withdrawal of the charges is said to be that this individual has left the city.

Sanitary Association Organized.—The Indiana Sanitary and Water Supply Association, affiliated with the State Board of Health, was organized July 18 at Indianapolis by superintendents of water works, water chemists, health officers and members of the State Board of Health. H. E. Barnard, state water commissioner, was elected president, and Frank Jordan of the Indianapolis Water Company, secretary. The purpose of the organization is to study the source of the public water supplies, their preservation, conservation and purification, and to work for advanced legislation looking to that end.

Licenses Revoked.—The State Board of Medical Examination and Registration is said to have revoked the licenses of Dr. W. P. Hacker, Bloomington, and Dr. McKendree Green, Pleasant Lake, on the ground that they had been writing prescriptions for the purchase of intoxicating liquors, without first making examination of the individuals to whom such prescriptions were issued.——The State Board of Medical Registration and Examination, at its meeting July 16, issued an order revoking the license of Herman Reiss, Hammond, to practice medicine. It is charged that Reiss obtained his license in an irregular manner, and had failed to present his license for cancellation as agreed.

MISSOURI.

Tuberculosis Dispensary Opened.—A free dispensary for the treatment of tuberculosis was opened in the Post-Graduate Hospital, Kansas City, July 13. There will be clinics three days in the week, at which physicians and nurses will be in attendance; and in addition arrangements have been made to have visiting nurses and representatives of the Associated Charities visit homes of patients.

Circulating Medical Library.—The library of the University of Missouri has made arrangements whereby members of the State Medical Association may have access to books in the library. On making application to the librarian, books will be sent to the applicant, who has to pay charges of transportation in towns where there is no public library; in towns which have libraries the books will be sent through the library.

Personal.—Dr. William Bayliss, superintendent of the Missouri State Sanatorium for Incipient Tuberculosis, has resigned and Dr. Orville H. Brown, physician-in-charge, has been placed in full charge of the institution pending further action by the board of directors.——Dr. Edmund A. Donelan, St. Joseph, celebrated his eighty-fourth birthday, July 9. The local medical society made the occasion memorable by presenting Dr. Donelan with a handsome leather rocking chair.——Dr. and Mrs. Thomas C. Allan, Bernie, have returned from a vacation trip to Colorado, Mexico and the Pacific Coast.

St. Louis.

Proposed Health Building.—The Society for the Promotion of Health, St. Louis, proposes to erect a health building in University City to cost $300,000. The building will contain offices, furnished free of charge, for all societies engaged in the fight against tuberculosis, and will have an auditorium with a seating capacity of 5,000, which is to be offered, rent free, in the interest of philanthropic movements.

Medical Practice Act Not Retroactive.—Judge Kinzie of the Circuit Court has declared that that portion of the Medical Practice Act which authorizes the State Board of Health to revoke licenses is not retroactive. This opinion was rendered in the case of Dr. Edward J. Hogan, whose license was revoked in 1906, on the charge of unprofessional conduct, before the new law allowing appeal to the Circuit Court went into effect.

Personal.—Drs. Edward and Henrietta A. S. Borck sailed for Europe from Baltimore, July 8.——Drs. Samuel T. Bassett, Samuel T. Lipsitz, Albert Vogel, C. M. Barr and Frank L. Whelpley have been appointed junior physicians at the State Hospital.——Dr. Bradford N. Robinson has been appointed assistant junior physician at the Female Hospital.——Dr. F. W. Klocke has been appointed junior physician at the City Hospital.

Maternity Hospital.—The Maternity Hospital is now established in its new quarters, 2521 Locust Street. In addition to the charity ward there are a number of private rooms. The medical staff consists of Dr. Davis Forster, physician-in-chief; Dr. Frank Hinchey, alternate; and Dr. Harry D. Carley, assistant. The consulting staff is composed of the following physicians: Dr. John C. Morfit, president; Dr. John Young Brown, vice-president; Dr. Davis Forster, secretary; and Drs. Alonzo R. Kieffer, Edwin R. Meng, William H. Stauffer, John Green, Paul Y. Tupper, Eugene T. Senseney, J. O'Fallon Farrar, Leo C. Huelsman, Amand Ravold and Cyrus E. Burford.

NEW YORK.

New York City.

Vanderbilt Clinic to Become a Dispensary.—Plans have been filed for remodeling the Vanderbilt Clinic of the College of Physicians and Surgeons into a dispensary. The projected improvements are to cost $20,000.

New Milk Distributing Headquarters.—A new headquarters and laboratory for the Nathan Straus milk distribution philanthropy will be opened in East Thirty-second Street. The building is a three-story building, constructed of marble and tiles and fitted with all modern appliances for serving pure milk.

Insanity on the Increase.—State Commissioner in Lunacy S. T. Viele says that the average increase in insanity for the last ten years is 717 cases a year. Last year the increase was about 750. This year he expects it will be at least 1,000. Most of this increase is from the city of New York and vicinity.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended August 1, 461 cases of tuberculosis, with 154 deaths; 187 cases of diphtheria, with 17 deaths; 153 cases of measles, with 11 deaths; 123 cases of scarlet fever, with 4 deaths; 76 cases of typhoid fever, with 13 deaths; 29 cases of whooping cough, with 4 deaths; 12 cases of cerebrospinal meningitis, with 11 deaths; and 14 cases of varicella, a total of 1,055 cases and 214 deaths.

Sanitary Work Effective.—There has been a marked decrease in the mortality among children for the week ended August 1. The Conference on Summer Care of Babies which brought about a cooperation of the institutions engaged in work among the poor on the East Side attributes this reduction to unity in effort, and asserts that 872 babies might be saved if the whole city should gain as Brooklyn has. There the number dropped in two weeks from 151 to 91. The number of deaths in the tenement houses for the last week in July was 968 in 1907 and 649 in 1908.

OHIO.

Society Meetings.—Physicians of the South Side, Columbus, at a meeting recently held, organized the South Side Physicians' Association, with the following officers: President, Dr. Myron T. Dixon; vice-president, Dr. Herman C. Hoppe; secretary, Dr. D. R. Williams, and treasurer, Dr. Herman L. Harris. ——At a joint meeting of the medical societies of Butler, Warren, Montgomery and Green counties, held in the Chautauqua grounds, Middletown, July 14, Dr. Thomas A. Dickey, Middletown, was elected president; Dr. Asa C. Messenger, Xenia, secretary, and Dr. Hugh J. Death, Franklin, treasurer.

Hospital Notes.—It is announced that the McKinley home, Canton, is to become a Roman Catholic hospital.——St. Luke's Hospital, Cleveland, was formally opened July 19. The building has 41 private rooms; and in addition a railroad, a male and a female ward, each containing eight beds. The building was erected at a cost of $150,000, and the following compose its staff: Surgery—Drs. Charles B. Parker, Maurice D. Stepp and John F. Hobson; medicine—Dr. Milton J. Lichty; gynecology—Drs. Roland E. Skeel and Albert F. Spurney; nose, ear and throat—Dr. John N. Lenker; eye—Drs. Daniel B. Smith and Edward S. Lauder; obstetrics—Dr. Roland E. Skeel; pediatrics—Dr. Samuel W. Kelley; dermatology—Dr. Harry B. Kurtz, and hydrotherapy—Dr. James Stotter.——The contract for the main building for the State Sanatorium for Tuberculosis, near Mount Vernon, has been awarded to R. H. Evans & Co., Zanesville, on a bid of $300,660.——The contract for the addition to Grant Hospital, Columbus, has been awarded to John Heckert, whose bid was $125,000.

PENNSYLVANIA.

Fire Destroys Hospital.—The City Hospital of Lock Haven was destroyed by fire July 28. There were 30 patients in the institution at the time, but they were all removed without harm. The loss is estimated at $45,000.

Bids for Asylum Rejected.—The state commission for the State Hospital for the Criminal Insane, to be erected at Fairview, Wayne County, has rejected the bids for the erection of the new buildings Nos. 4 and 8. The site of the proposed hospital is a square mile of land near Carbondale, and is 2,200 feet above the sea. The land was deeded to the state for one dollar by the Delaware & Hudson Railway Company.

Personal.—Dr. Harry G. Burns, William H. Weber and Charles C. Williams have been appointed members of the councilmanic committee from the select council of Pittsburg, and Drs. Paul H. Franklin, W. G. Adair, F. H. Frederick and E. F. Schatzman from the common council, to investigate the use of water meters.——Drs. S. S. and William Koser, Williamsport, were seriously injured in an automobile accident near Loyalsockville, July 20.——Dr. Charles C. Wiley, Pittsburg, major-surgeon of the Second Brigade, N. G. Pa., was injured by a stroke of lightning at the National Guard encampment, Gettysburg, July 23.

Philadelphia.

Personal.—Dr. William W. Keen, who has been abroad for more than a year and a half, is expected to return August 25. ——The Alvarenga prize of the College of Physicians, Philadelphia, for 1908 has been awarded to Dr. William T. Shoemaker for an essay entitled "Retinitis Pigmentosa."——Dr. John F. X. Jones sailed for Europe August 1.——Dr. Aller G. Ellis has returned from a year's study in Europe.——Dr. Charles J. Hoban sailed for Europe August 8.

Health Report.—The total number of deaths reported for the week ended August 8 aggregated 482, including 268 males and 214 females. This is an increase of 9 over the number reported in the preceding week and an increase of 55 over the number reported in the corresponding week of last year. The principal causes of death were: Typhoid fever, 5; measles, 3; scarlet fever, 3; pertussis, 9; diphtheria, 5; consumption, 56; cancer, 22; apoplexy, 8; heart disease, 34; acute respiratory disease, 13; enteritis, 100; hepatic cirrhosis, 6; appendicitis, 4; Bright's disease, 38; premature birth, 10; congenital debility, 15; senility, 10; suicide, 4; accidents, 14, and marasmus, 13. There were 84 cases of contagious diseases reported, with 13 deaths, as compared with 105 cases and 6 deaths reported in the previous seven days.

FOREIGN.

Galligo Prize.—This prize of $100 is conferred every three years for the best work on syphilis or the diseases of children, written in Italian and offered anonymously in competition. Address communications to the Accademia medico-fisica, via Lamarmora, Florence, Italy.

International Congress of School Hygiene.—Plans are well under way for this congress which will meet at Paris, March 29, 1910. The two preceding congresses were held at Nuremberg, 1904, and at London in 1907. For all information in regard to the congress apply to R. Dinet, rue Cernuschi, Paris V. France. M. Friedel, director of the Musée Pédagogique, 41 rue Gay-Lussac, Paris, has charge of the exposition to be held in connection with the congress.

Typhus Fever in Russia.—It is a matter of history that perhaps no disease in the past has included among its victims so many medical men as typhus fever. This is shown again in the present epidemic in Russia. The last issue of the *St. Petersburg med. Wochenscrift* mentions in its obituary columns four physicians, Drs. Prichodko, Lyssenko, M. Hochberg and Gerassimow, all of whom are said to have succumbed to spotted fever, professionally acquired. One leaves a family, and a pension of about $500 (700 roubles) has been awarded to the widow. The deaths of three other physicians from the same cause were reported in a previous issue. The disease is said to be epidemic in almost every part of the Russian empire, even at Kiev and Moscow.

LONDON LETTER.

(From Our Regular Correspondent.)

LONDON, Aug. 1, 1908.

Lunacy in Ireland.

The large amount of lunacy prevalent in Ireland is a cause of serious concern. Various explanations have been given of the fact. One of the most plausible is that the high percentage is apparent rather than real and is due to the depletion of the country by emigration of its healthiest and most energetic stock. In his annual report, just issued, the medical superintendent of the Cork District Lunatic Asylum brings into great prominence alcoholism as a cause. He reports that there is slight decrease of the number of inmates of the asylum as compared with the previous year, but that the most fruitful cause of insanity is intemperance. Nearly 19 per cent. of the admissions for the year were due to alcoholism. The reduction he regards as a fruit of the temperance movement, which has made considerable progress in Ireland in recent years.

The Teaching of Hygiene.

The board of education has issued a new set of regulations for the training of teachers for elementary schools—regulations in which, for the first time, the necessity for rendering teachers competent instructors in the elements of hygiene and of physical exercises is brought into prominence. The board declares that the matter is urgent and that the absence of proper training of teachers is a grave defect. A model syllabus for the instruction of teachers in the principles of hygiene is supplied and the authorities of training colleges are permitted to offer for the approval of the board such modifications of this model as may seem to them better suited to the special opportunities or requirements of any given institution. The model includes a study of the indications of fatigue and of the methods of recognizing difficulties arising from defects of special sense. It is well known that

even in schools for children of the wealthy children have been punished for supposed inattention when the fault was an inability to see or to hear properly. Under the head of cleanliness the syllabus shows the teacher how to render the class room an object lesson in cleanliness.

BERLIN LETTER.

(From Our Regular Correspondent.)

BERLIN, July 1, 1908.

Statistics of Population.

There is no need of argument with physicians to establish the necessity of a growth in population. Not only from the standpoint of capacity for defense, but also from the most various social points of view, an increase in population is to be desired, both by an increase in the number of births and by a diminution in the death rate. Germany has for many years been able to claim a good position in national statistics in both respects. Of late, however, the conditions have altered for the worse to her disadvantage, and political economists and physicians have on this account repeatedly taken opportunity carefully to point out this circumstance and to make efforts toward an improvement.

So far as the death rate is concerned, we have to do chiefly with infant mortality, which in Germany still maintains a high figure. For this reason attention has been directed with increased zeal to the nutrition of infants, which is, as is well known, of the greatest influence with reference to the death rate. Pediatrists and, under their leadership, the state, societies and private persons of means are working to improve the condition of nutrition of infants, especially among the poorer classes of the population. Particularly an effort is being made to induce the women of the working class to keep up breast feeding more than has formerly been the case. For a period the nourishment of infants by the bottle with cow's milk was very popular, in consequence especially of the labors of Soxhlet, to such an extent that pediatrists esteemed it as of equal value with breast feeding. It is now recognized, however, that human milk deserves the preference by far, not only for the production of stronger children and the avoidance of constitutional weakness, especially rickets, but also for the reduction of the death rate. This doctrine is of equal force for the poorer as for the well-to-do classes. Even among the latter breast feeding has quite markedly diminished in prevalence, so that, for instance in Frankfort-on-the-Main, the employment of wet nurses as a substitute for the nourishment by the mother is scarcely known and bottle feeding is generally employed. While the preference for bottle feeding among the poorer population is occasioned by the failure of strength and of breast milk among the women and by lack of time in consequence of the necessary occupation of the woman in housework or in factories, among the well-to-do, convenience, indolence and similar factors are especially influential. The disinclination of women to nurse their own children is being gradually diminished by the repeated warnings of physicians in word and writing, and the offering of prizes for women who have nursed their children has had a favorable influence in assisting this effort with the women of the lower classes. A great deal has already been accomplished. From a publication of the Imperial Health Office, which appeared last year, it appears that the death rate of infants in many districts of Germany has been appreciably lowered in late years, in some places as much as 50 per 1,000. Last year the cornerstone of a model institution for the campaign against infant mortality was laid which, it was said, was founded on the initiative of the empress and therefore bears her name. In this institution the questions relating to the appropriate nourishment and the reduction of the mortality of infants are to be studied practically and scientifically.

As to the other factor affecting the growth of the population, namely, the birth rate, Germany, as has been remarked, is not in so good a position as formerly. In places of over 2,000 inhabitants the number of births fell on the average, reckoned for 1,000 inhabitants, from 38.6 in the years from 1867 to 1870 to 33.3 in 1902. In Berlin there were in 1876 240 births for every 1,000 married women; in 1905 only 110. In Stuttgart in the period from 1872 to 1875 there were, on the average, 45 births for 1,000 inhabitants, but in 1906 only 29; in Munich 46 births in 1877 per 1,000 fell to only 30 in 1906. It is readily seen that it is in the cities that the evil is especially great, and as the urban population of Germany increases from year to year the fear that the increase of population will be progressively diminished is near at hand. In 1876 the excess of births over deaths was 14.6 per 1,000 inhabitants, but in 1905 it was only 13.2. The reasons for the reduction of the birth rate are evident. Economic questions play a rôle here, even among the well-to-do, more than in connection with infant mortality. The increased demands entailed in making a living reduce the inclination and the ability of men to marry and on the other hand, favor the artificial limitation of offspring. Families with two children, which were formerly characteristic of the conditions prevailing in France, may be found now with extraordinary frequency in Germany.

But it is just the consideration of the situation in France which increases the anxiety of the German political economists. In France, where the family has not remained stationary with two children, but in not a few instances has descended to the plane of one child, the birth rate has continually diminished. According to the statistics of population for 1907, the births were 33,000 less than the year before. While previous to 1907, the birth rate exceeded the death rate to a slight extent, during this year the relation was reversed; the number of deaths exceeded the births by 20,000, and an actual reduction of the population has occurred in France for the first time. These conditions, of course, must occasion the greatest anxiety in that country. Some years ago the French government appointed a commission with the task of working out a program for raising the birth rate. The commission proposed, among other measures, to reduce the taxes of the fathers of large families, to simplify the formalities of marriage, and to facilitate the naturalization of the numerous foreigners.

While the conditions in England are by no means so bad as in France, they are not at all promising. In England and Wales the number of births in 1907 was only 26.3 per 1,000 inhabitants. In comparison with 1876 the fertility of married women in 1907 had fallen 25 per cent. The same evil is to be seen in many civilized countries, and there is scarcely any doubt that the same causes are influential in all.

Oscar Liebreich.

The eminent pharmacologist of the Berlin University and Privy Medical Councillor (Geheimer Medizinalrat), Professor Oscar Liebreich, died July 2 at the age of 69. He was compelled to give up his active teaching a year ago. An advancing arteriosclerosis, which especially affected the brain and led to dementia, necessitated his withdrawal from the faculty of the university and entrance into a sanatorium. His death was only a release for him. Liebreich belonged to the circle of men who have materially increased the reputation of German science in general and of the Berlin University in particular. He belonged to the group of men of which Helmholtz, Virchow, Langenbeck, v. Bergmann and others were the most prominent members. As assistant of Virchow, whose institute he entered in 1867, it was his fortune to discover the hypnotic action of chloral hydrate which had been produced by Liebig in 1832. This discovery was practically and theoretically of the greatest importance and would of itself be enough to secure for Liebreich a permanent place of honor in the history of medicine. To this were added other discoveries in the same field of analgesic agents; he discovered butylchloral and ethyl chlorid. Of other investigations, the determination that protagon is the principal phosphorus-containing constituent of the brain (an observation which Liebreich made when a student), the introduction of hydrargyrum formamidatum, and especially that of lanolin, should be noted. His chemical studies of food-stuffs and investigation of balneotherapy should be emphasized. In a literary way Liebreich was extraordinarily fruitful. The compendium of materia medica published by him and Langaard is widely used. He founded the *Therapeutische Monatshefte* and the less well-known *Enzyklopädie der Therapie*. Liebreich was a clever man who knew well how to turn his scientific discoveries to good use. He was a brilliant speaker. As a teacher, it is true, he was at a disadvantage for medical students, because he did not understand how to meet the practical needs of students. But the smaller the amount of pharmacology the students of medicine learned in his institute, the more severe were his examinations. On this account he was quite as much feared as an examiner as Virchow, and not a few students failed under him one or more times. Personally he was agreeable and he played a not insignificant rôle in the social life of Berlin. His death is a loss to the medical faculty of Berlin. And in this case also the view which we expressed in a former letter holds good; the rising generation does not justify the hope that men like Liebreich can be replaced by others equally gifted.

Pharmacology

THE BROADER AIMS OF THE COUNCIL ON PHARMACY AND CHEMISTRY.

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CLEVELAND, OHIO.

(*Continued from page 511.*)

XXI. THE CONSTRUCTIVE WORK OF THE COUNCIL.

In the preceding paper I emphasized the fact that the real tendency of the Council has been toward construction. This phase of the work may have been obscured in the public mind by the more striking nature of the exposures. In fact, however, these exposures and condemnations are merely incidental; the practical success of the Council must be measured by its constructive work. The number of products which have been brought to compliance with the rules is a better test of success than the number which have been refused or exposed. Of the more than 300 articles admitted by the Council, only a fraction complied with the rules when these were formulated. This showing is a gratifying measure of progress, but is a symptomatic rather than an essential measure.

Whether a thousand, or a hundred, or but ten products are recognized by the Council is not in itself a vital matter. This is important mainly in that it throws light on the really important question, whether it is more profitable to market a medicinal product honestly or dishonestly. For this reason, then, there is cause for congratulation in the fact that so many remedies are being marketed in conformity with the Council's rules—not because of their number, but because it proves that manufacturers consider it profitable, and they consider it profitable because they are convinced that a large part of the medical profession will insist on this compliance. On the other side of the ledger, however, is the fact that five-sixth of the remedies advertised in current journals do not conform to these rules. This seems to show that a very large part of the profession does not insist on these rules.

Signs of progress there are in all directions. The articles submitted and re-submitted to the Council show constant improvement. Correspondence with manufacturers shows a more serious realization of their responsibilities. Prescription-counts all over the country indicate that the tide in the use of proprietary remedies has turned; and it is to be hoped that the decrease affects mainly the unworthy products. The five-sixths of unaccepted advertised articles, however, is a stubborn fact; it may be the indication of a desperate death struggle; or it may mean that the end of the campaign is not yet in sight. It probably indicates both; but whatever its meaning, we should be active to hasten the end.

As I said in my first paper, the Council should advance to a broader work—a program of research, clinical as well as experimental; of popular dissemination of scientific information; in a word, the general advancement of the sane study of scientific therapeutics. These matters have been started; but the main thing at the present time is to complete the present task. This is the "proprietary problem"; it should be disposed of NOW. In the next and final paper, I shall discuss the directions which this further work must take.

(*To be concluded.*)

The Ethics of Medical Journalism in Germany.

The evils that affect the medical press in this country are evidently not limited to America. The "original article" type of proprietary write-up and the department of "therapeutic notes" is evidently by no means an unknown quantity in European medical journalism.

A somewhat lively discussion of journalistic ethics has recently been going on between two German medical journals—the *Aerztliche Mittheilungen*, and the *Münchener medizinische Wochenschrift*. The former journal expresses the opinion editorially that the medical profession should deal thoroughly with the subject of medical advertising. These sentiments, like many to be found in medical journals nearer home, while admirable as expressions of abstract principle, are somewhat vitiated by the inconsistence of existing facts. This the *Münchener medizinische Wochenschrift* points out and calls attention to the department published by the *Aerztliche Mittheilungen* entitled "Aus der Praxis" (from practice) which, while ostensibly devoted to reliable clinical reports, is, in fact, largely made up of "reading notices" of proprietary products. As the *Münchener medizinische Wochenschrift* states, there may be no objection to inserting such notices in the advertising pages, as everyone knows that space is paid for. Such departments as "Aus der Praxis," however, may be assumed to belong to the parts of the journal for which the editor is responsible and in which no matter of a commercial nature appears.

It appears, too, that the *Aerztliche Mittheilungen* had among its original articles a paper by Dr. Golinger on the action of the proprietary preparation, biocitin. Golinger, it seems, is one of those physicians, not unknown in the United States, who prostitute the profession of medical journalism by placing themselves at the disposal of pharmaceutical manufacturers for the purpose of preparing "original articles" that exploit proprietary products.

The German medical press has an association whose members refuse to accept for their respective journals, either such "original articles" or abstracts of them. The existence of such an association and the fact that the ethics of medical journalism is a subject of sufficient moment to give rise to the discussion referred to, augurs well for the future of medical journalism, in Germany at least.

Proprietary Meat Juice.

Puro, a widely advertised German tonic, is stated to be the meat juice expressed from raw beefsteak, each bottle "representing five pounds of meat juice." About a million bottles of the preparation are sold annually in Germany, and quite a sensation has followed the announcement by Prof. von Gruber in the Antiquackery Society's organ, the *Gesundheitslehrer*, that there is little or no meat juice in the preparation and that it consists only of meat extract and egg albumin. The numerous testimonials from physicians to the remarkable efficacy of the "meat juice" preparation show once more the effects of auto-suggestion in the matter of proprietary articles.

Correspondence

Cheapness in Pharmacy.

EVANSTON, ILL., July 25, 1908.

To the Editor:—In Dr. Sollmann's article in THE JOURNAL, June 27, page 2146, there appears the following statement: "If the official products are used with due regard to their therapeutic limitations; if they are actually obtainable of a grade superior, or at least equal, to that of the proprietary equivalents, and if they are materially cheaper to the consumer—then their use should be encouraged."

Because of the great good Dr. Sollmann is doing, the broadness, generally speaking, of his views on medical and pharmaceutical subjects, and the thoroughness of his education along these lines, it is disappointing that he should thus prejudice the pharmacist's side of the question.

The extended circulation of THE JOURNAL and Sollmann's reputation will be the means of attracting the attention of so many physicans to the statement, that the article should not be passed without discussion. I do not desire to criticise, but to call attention to another side of this big subject.

The hint given of cheapness of product, in a way, is a continuance of the same grinding-down process, which has been

going on for years, and disheartens the man who wishes to practice true pharmacy. Quality and reliability should be the physicians' goal. The law of supply and demand will regulate the just price. It may be unfortunate, but it is nevertheless true, that without proper compensation true pharmacy is an impossibility.

An article in *Appleton's Magazine*, April, 1908, discussed the compensation for physicians' services in its true light, and may well be applied to pharmacy. The pharmacist's charges should not, and can not, be simply for the material furnished plus an allowance for time at laborer's rates. The remuneration which he should and must receive differs not one iota from that of any one of the professional followings, plus ordinary mercantile profits. The amount received must be in proper proportion to the great length of time and the necessary education required to enable him to compound and to dispense properly. The competent surgeon is not paid two, five or fifteen hundred dollars for simply carving human flesh, but for so skilfully performing an operation that a human life will be saved. So with the pharmacist, a proper reward must follow for his services in skilfully manufacturing and dispensing while assisting in prolonging or saving that same life. It is realized that we must exercise the greatest amount of patience possible in handling the subject so often spoken of as "a return to the practice of medicine and pharmacy" and also with each other while doing so. In order to accomplish the greatest amount of good, it is necessary, without doubt, that the physician should become more fully acquainted with the pharmacist's side of the subject and the pharmacist must take an equal interest in becoming more intelligent regarding the physician's ground.

"The well-known fact" that the druggist's charges are far greater than is necessary, has never been proved by the existence of swollen bank accounts or a showing of what money can buy. Compare conditions as they exist. It does not appear to be a crime for those engaged in purely commercial lines to own a comfortable home and a building in which to carry on their business, to be interested in outside investments, and to have a bank account which enables them to pay bills promptly and take advantage of discounts or favorable changes in the market price on the material they handle; but for the pharmacist no such conditions must ever enter into his dreams. Going confidentially deeper into this side of the question, dare we tell the layman how necessary is the laboratory, which to-day for financial reasons does not exist?

The movement inaugurated by the American Medical Association and backed by all good intentioned men will gradually improve, it is hoped, the overcrowded conditions, and the future physician and pharmacist will occupy more nearly their rightful positions. If physicians honestly desire good pharmacy, it must be nursed and assisted in every way. No one attempts to deny that proprietary and specialty articles are very much overpriced, but that side of the question will right itself. The main point to be kept in view is the non-secrecy of the formula. The physician and the pharmacist, working hand in hand, should not find it difficult to decide on what mixtures are necessary; neither should he be willing to betray the trust of those who so confidently place their lives in their hands, by prescribing or dispensing medicines the nature of which they do not know. We need not take into consideration the charges made at a "drug store" where slipshod methods of compounding and dispensing are used. This class of stores will find their own graves at a rate proportionate to the advance made by the total body. Those best fitted must be given an opportunity to do enough work in true pharmacy so that it will be possible to reach the standard desired, and at the same time the public must be educated to higher demands. With the many drug stores of to-day owned and run by those having but the one thought "for commercial reasons only" in mind, it is a matter for future demonstration as to whether it will be possible to be a pharmacist or own a pharmacy.

Every earnest, educated laborer is entitled to his hire, and the compensation should be sufficient to allow him to live comfortably and lay aside for old age or the days when he will be unable to work. For lack of that necessary intimate acquaintance with the subject it ill becomes a pharmacist to try to regulate a physician's charges, and for the same reason the physician should refrain from attempting to price the pharmacist's goods or services. GEORGE P. MILLS, Ph.G.

This letter was referred to Dr. Sollmann, whose reply follows:

The plea of Mr. Mills deserves the serious attention of the medical profession. Whoever has had the least acquaintance with the business side of pharmacy will agree that the common notion of the enormous profits of the druggist are entirely erroneous. Indeed, the income of the average pharmacist is relatively so meager that it deters many of the best men from entering or continuing in pharmacy. No profession can advance or even keep up a high standard unless its returns are fairly attractive.

There is no good reason why a competent pharmacist should ask less for products which he makes himself than for those which he buys from a manufacturer. To the contrary, this would, in the end, work against the public interest, since it would cheapen his professional pride. However, if he asks the same price, then the "lower cost" should not be used as an argument for prescribing official products, as is so often done. The financial consideration, in this case, is the affair of the pharmacist, and does not concern the physician and his patient. This is the meaning which I had intended to convey by the words which Mr. Mills criticises.

Book Notices

SURGERY. By John Allen Wyeth, M.D., LL.D. (University of Alabama), President of the New York Academy of Medicine. Cloth. Pp. 816, with 864 illustrations, of which 57 are colored. Price, $6.00. New York: Marion-Sims Wyeth & Co., 1908.

Twenty-one years ago Wyeth's "Text-Book of Surgery" made its appearance and immediately became recognized as a standard work of reference and one to be depended on. Having become of age, it has been rechristened and now appears under a new name, "Wyeth's Surgery." Not only has it been rechristened, however, in many essentials it has been rewritten; at least every subject has been brought up to date. While most of the illustrations contained in the old book have been retained, many new ones have been added, a number being in colors. Naturally, one does not expect such exhaustive treatment of a subject, or such detailed descriptions in a single volume as in a composite work of several volumes. But in this instance there is no criticism in this regard. On the whole, the new "Wyeth's Surgery" will continue to hold the high place that its predecessor—Wyeth's "Text Book of Surgery"—has held for the last twenty-one years.

CONTRIBUTIONS TO THE SCIENCE OF MEDICINE AND SURGERY. By the Faculty in Celebration of the Twenty-fifth Anniversary of the Founding of the New York Postgraduate Medical School and Hospital. Paper. Pp. 485.

This is a handsome volume, issued to commemorate the twenty-fifth anniversary of the founding of the New York Postgraduate Medical School and Hospital. It contains, in addition to forty-eight original articles by members of the faculty, not a few of which are of more than ordinary interest, an obituary notice with an excellent etched portrait, by Jacques Reich, of the late Dr. D. B. St. John Roosa, to whom it will serve as a worthy memorial tribute from his former colleagues.

Tact.—There is no better market for tact than the home of and the presence of the sick. Human nature when sick and the human nature of friends of the sick is often a strange, unknown quantity, and the physician must meet emergencies arising from this source and he must often meet them instantly, with great resourcefulness. It is tactful to acquire and hold the confidence of the patient's friends in and about the home, for many a patient is completely under the influence of his friends.—*Leucocyte.*

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

RELATIVE PROPORTIONS OF MALE AND FEMALE BIRTHS.

TERRE HAUTE, IND., July 23, 1908.

To the Editor:—Can you give me the relative proportion of male and female birth in this and foreign countries?

F. D. WIEDEMANN.

ANSWER.—In a brochure on "Numerical Proportions of the Sexes at Birth" (Memoirs of the American Anthropological Association, I, part 4), Dr. J. P. Nichols, basing his deductions on the available statistics of living births in all parts of the world aggregating 693,785,722, says that ordinarily there is a slight, though constant and decided, excess of male over female living births. We quote as follows from this brochure, pages 256, 257 and 265:

Proportions of the Sexes of Infants Born Living.—The statistics for the United States are scanty and scattered; but in 8,377,527 white births there were an average of 1,059 sons born alive for every 1,000 daughters; and this may be taken as an approximate average ratio for this country. The ratio for Massachusetts for fifty-one years, 1,056, is practically the same as the general average; while the adjacent states of Rhode Island and Connecticut gave ratios of 1,043 and 1,066. The highest ratio is for Philadelphia (seven years), 1,093; while New York City (twelve years) has only 1,046.

For European countries the statistics are much more complete and satisfactory. An aggregate of 649,415,411 living births in all parts of Europe yields an average ratio of 1,057 sons for every 1,000 daughters; for the decade 1891-1900, 125,394,583 living births give a ratio of 1,053. For most countries in Europe the ratios range in the neighborhood of the average. In the southernmost countries of Europe there is a decided general tendency toward a much higher ratio of boys, such as 1,132 for Greece (the highest in Europe), 1,088 for Roumania, 1,082 for Bulgaria, and 1,078 for Spain (1,103 for 1900-1903); Servia, however, is at the average, 1,058, while Italy (1,061) and Portugal (1,067) are not greatly above. In the northern countries of Europe, on the contrary, the ratio of boys tends rather below the average, although the difference is not nearly so marked as in the case of the southern countries. The ratio for England and Wales is the lowest in Europe, 1,041 for 1838-1903, 1,036 for 1891-1900. The recent ratio for France (1891-1900) is also low, 1,043.

The Musselman or Arabian population of Algeria gives the ratio of 1,191 sons for 1,000 daughters, the highest ratio found anywhere; this high rate may be taken into consideration in connection with the high rates of the neighboring southernmost countries of Europe. India, also a tropical country, yields a high rate, 1,075. The ratio in Japan, 1,047, is below the general average for the white race. The lowest ratio of all is given by the colored race in the United States, 778,443 births yielding the ratio of only 1,009.

It thus appears that there is a slight but constant numerical excess of male over female living human births in all parts of the world, the average proportions for the white peoples ranging from about 1,053 to 1,059 sons for every 1,000 daughters. There are slight variations in the ratios in different countries. In countries adjacent to the Mediterranean the ratios of sons are much above the average, while in the north of Europe they are rather lower. The colored race in the United States shows a very low rate, while the Japanese are below the average for the whites.

Proportions of the Sexes of Infants Still-Born.—The available statistics of still-births for the world, as reported, with the statistics of the corresponding living births, aggregating 13,635,986 still-births and 433,383,593 associated living births. In the main, the still-births are of fetuses of more than six months' gestation.

From this it immediately appears that the number of males still-born is always much greater than that of females still-born; and there are greater fluctuations in the ratios than in the case of living births.

INTERNATIONAL MEDICAL CONGRESS.

NEW HAVEN, CONN., Aug. 7, 1908.

To the Editor:—Kindly inform me when and where will occur the 1909 meeting of The International Medical Congress.

A. G. NADLER.

ANSWER.—Aug. 24 to Sept. 4, 1909, at Budapest.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, for the week ended Aug. 8, 1908:

Mabee, J. I., capt., M. C., relieved from duty on the transport *Sherman* and ordered to Jefferson Barracks, Mo., for duty: granted leave of absence for two months.

Bratton, T. S., maj., M. C., ordered from Fort Des Moines, Iowa, with Second Cavalry to camp near Fort Riley, Kans.

Bourke, J., capt., M. C., ordered from Fort Leavenworth, Kans., to duty at camp near Fort Riley, Kans.

Stone, J. H., maj., M. C., ordered from Newport News, Va., to the U. S. Military Prison, Fort Leavenworth, Kans., for duty.

Howell, P., capt., M. C., when relieved from duty at the U. S. Military Prison, Fort Leavenworth, Kans., ordered to the Army General Hospital, Fort Bayard, N. Mex., for duty.

Palmer, F. W., capt. M. C., when relieved from duty at the Army General Hospital, Fort Bayard, N. Mex., ordered to Fort Benjamin Harrison, Ind., for duty.

Duncan, W. A., capt., M. C., granted leave of absence for 15 days.

Carter, W. F., maj., M. C., granted leave of absence for 1 month.

Stedman, C. J., capt., M. C., granted leave of absence for 3 months.

Wickline, W. A., capt., M. C., left Leon Springs, Texas, and arrived at Camp Emmett Crawford, Wyo., with detachment of Company B, Hospital Corps.

Freeland, H. L., first lieut., M. R. C., ordered to duty at Camp Emmett Crawford, Wyo.; granted leave of absence 20 days, about October 1.

Bayly, R. C., first lieut., M. R. C., ordered from Fort D. A. Russell, Wyo., to Camp Emmett Crawford, Wyo., for duty at field hospital during maneuvers.

Harris, H. I., first lieut., M. R. C., granted leave of absence for 16 days, after close of maneuvers near Fort D. A. Russell, Wyo.

Mueller, A., first lieut., M. R. C., ordered from Milwaukee, Wis., to Jefferson Barracks, Mo., for duty.

The following named first lieuts., M. R. C., recently appointed from contract surgeons, U. S. Army, with rank from July 7, 1908, are ordered to active duty and assigned at their present stations: Archer, W. M., Jr., Artaud, F. E., Bayley, E. W., Daywalt, G. W., Dickenson, C. F., Hewitt, J. M., Hogan, D. D., Hughes, L. S., Kelly, J. P., McMillan, C. W., Phelan, H. du R., Truax, J. P., Tuttle, G. B., Van Kirk, H. H., Coffey, A. McD., Coffin, H. L., Kierulff, H. N., Kress, C. C., Porter, E. H., Wilson, E., Bastion, J. E., Lincoln, H. F., Lowe, T. S., Parkman, W. E.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and other officers of the Public Health and Marine-Hospital Service for the seven days ended Aug. 5, 1908:

Pettus, W. J., asst.-surgeon-general, granted leave of absence for 1 month and 15 days, from Aug. 22, 1908, with permission go beyond the seas.

Carrington, P. M., surgeon, detailed to represent the service at the International Congress on Tuberculosis, to be held in Washington, D. C., Sept. 21 to Oct. 3, 1908.

Carrington, P. M., surgeon, granted an extension of leave of absence on account of sickness for 7 days.

Wertenbaker, C. P., surgeon, granted leave of absence for 1 month, from Aug. 9, 1908.

Clark, T., P. A. surgeon, granted leave of absence for 1 day, July 18, 1908, under Paragraph 191, Service Regulations.

Creel, R. H., P. A. surgeon, leave of absence granted for 2 months, from Aug. 3, 1908, amended to be effective from Aug. 31, 1908.

Mullan, E. H., asst.-surgeon, granted leave of absence for 7 days, from July 8, 1908, under Paragraph 191, Service Regulations.

Herring, R. A., asst.-surgeon, granted leave of absence for 1 day, July 31, 1908, under Paragraph 191, Service Regulations.

Stiles, Ch. W., chief of Division of Zoology, Hygienic Laboratory, detailed to attend the annual meeting of the American Public Health Association, Winnipeg, Canada, Aug. 25-26, 1908.

Bean, L. C., acting asst.-surgeon, granted leave of absence for 3 days, from Aug. 5, 1908.

Cleaves, F. H., acting asst.-surgeon, granted leave of absence for 12 days, from Aug. 3, 1908.

Delgado, J. M., acting asst.-surgeon, granted leave of absence for 1 day, July 30, 1908, under Paragraph 210, Service Regulations.

Hamilton, H. J., acting asst.-surgeon, granted leave of absence for 2 days.

Hicks, W. R., acting asst.-surgeon, leave of absence granted for 14 days, from June 1, 1908; amended so as to grant 5 days only.

Houghton, M. W., acting asst.-surgeon, granted leave of absence for 15 days, from Aug. 8, 1908.

Rowles, J. A., acting asst.-surgeon, granted leave of absence for 5 days, from July 29, 1908.

Safford, M. V., acting asst.-surgeon, granted leave of absence for 5 days, from July 28, 1908, under Paragraph 210, Service Regulations.

Savage, Walter L., acting asst-surgeon, granted leave of absence for 30 days, from Aug. 8, 1908.

Schwartz, Louis, acting asst.-surgeon, granted leave of absence for 7 days, from Aug. 3, 1908, under Paragraph 210, Service Regulations.

Weldon, W. A., acting asst.-surgeon, granted leave of absence for 30 days, from July 30, 1908.

Wilson, J. G., acting asst.-surgeon, granted leave of absence for 1 day, July 27, 1908, under Paragraph 210, Service Regulations.

Megaw, H., pharmacist, granted leave of absence for 30 days, from Sept. 1, 1908.

Ryder, L. W., pharmacist, granted leave of absence for 1 day,

July 31, 1908, under Paragraph 210, Service Regulations.

Thomas, A. M., pharmacist, directed to report to Surgeon H. W. Austin, chairman of a board of examiners, to determine his fitness for promotion to the grade of pharmacist of the second class.

RESIGNATION.

Pharmacist R. Miskimon resigned, to take effect Aug. 1, 1908.

BOARDS CONVENED.

A board of medical officers was convened to meet at New York, Aug. 5, 1908, for the purpose of making a physical examination of officers of the Revenue-Cutter Service. Detail for the board: P. A. Surgeon J. A. Nydegger, chairman; Acting Asst.-Surgeon Edward E. Lindeman, recorder.

A board of medical officers was convened to meet at San Francisco, on the call of the chairman, for the purpose of examining Pharmacist Thomas to determine his fitness for promotion to the grade of pharmacist of the second class. Detail for the board: Surgeon H. W. Austin, chairman; P. A. Surgeon W. W. King, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended August 7, 1908:

SMALLPOX—UNITED STATES.

California: San Francisco, June 11-18, 8 cases.
Illinois: Springfield, July 17-23, 1 case.
Indiana: Indianapolis, July 19-26, 1 case; South Bend, July 18-25, 2 cases.
Kansas: Kansas City, July 18-25, 1 case; Topeka, July 19-26, 1 case.
Louisiana: New Orleans, July 18-25, 1 case (imported).
Minnesota: Winona, July 11-18, 1 case.
Ohio: Dayton, July 11-18, 4 cases.
Tennessee: Knoxville, July 18-25, 1 case.
Virginia: Waynesboro, June and July, 20 cases.
Washington: Spokane, July 11-18, 5 cases; Tacoma, July 12-19, 2 cases.
Wisconsin: La Crosse, July 18-25, 5 cases; Milwaukee, July 11-18, 3 cases, 1 death.

SMALLPOX—INSULAR.

Philippine Islands: Manila, June 6-20, 5 cases, 4 deaths.

SMALLPOX—FOREIGN.

China: Foochoo, June 21-27, present; Hongkong, May 31-June 6, 4 cases, 3 deaths.
Ecuador: Guayaquil, June 13-27, 7 deaths.
Formosa: June 6-13, 1 case.
Japan: Kobe, June 27-July 4, 1 case; Osaka, June 20-27, 3 cases, 1 death.

YELLOW FEVER.

Cuba: Daiquiri, Aug. 3, 2 cases, Aug. 4, 1 case, Aug. 5, 1 case, 1 death.
Ecuador: Guayaquil, June 13-29, 1 death.
Martinique: Fort de France, June 21-27, 1 case, 1 death.
Mexico: Tierra Blanca, July 27, 1 case; Vera Cruz, Aug. 4, 1 case.

CHOLERA—INSULAR.

Philippine Islands: Manila, June 6-13, 1 case, 1 death; Provinces: Capiz, 100 cases daily; Pangasinan, 100 cases daily.

CHOLERA—FOREIGN.

China: Hankow, July 25, present.

PLAGUE.

China: Hongkong, May 31-June 6, 138 cases, 112 deaths.
Ecuador: Guayaquil, June 13-27, 4 deaths.
Egypt: General, June 25-July 2, 55 cases, 25 deaths; Alexandria, June 26-29, 7 cases, 3 deaths.
Formosa: June 6-July 4, 117 cases, 121 deaths.
India: General, June 6-20, 1,618 cases, 1,615 deaths.
Japan: Kobe, June 27-July 4, 1 case; Osaka, June 20-27, 1 case, 1 death.
Venezuela: Caracas, July 4-21, 25 cases (estimated).

Marriages

RALPH C. PEASE, M.D., to Miss Pearl Walker, both of Chardon, Ohio, July 26.

HENRY HUGH CLARK, M.D., to Mrs. Ida P. Graham, both of Pittsburg, Pa., July 28.

ALBERT W. ADAMS, M.D., to Mrs. Sophia Sarlin, both of Bellevue, Mich., recently.

MARVIN SCOTT, M.D., Headland, Ala., to Miss Clyde Stoveall of Columbia, Ala., July 29.

CLINTON J. HANCOCK, M.D., Greenup, Ill., to Miss Minnie Wood of Casey, Ill., July 22.

GEORGE EDWIN COOK, M.D., St. Louis, Mo., to Miss Lutie Boyce of Jefferson City, Mo., June 7.

GILBERT TYSON SMITH, M.D., Stamford, Conn., to Miss Olive Schaeffer, at Stamford, Conn., July 15.

FRANK Y. NEER, M.D., to Miss Hulda Forshay, both of Paterson, N. J., at Newark, N. J., July 14.

ALFRED S. BLACK, M.D., Winifrede, W. Va., to Miss Rose Murrill of Charleston, W. Va., July 22.

AUSTIN COLMAN BRANT, M.D., Canton, Ohio, to Miss Mary Bowdle Garde of Clifton, Cincinnati, June 15.

GEORGE W. BAILEY, M.D., St. Martins, N. B., to Miss G. Dyer of Montreal, Que., at St. John, N. B., August 1.

JOHN D. FREEMAN, M.D., Topeka, Kan., to Miss Bernice Hough of Ottawa, Kan., at Kansas City, July 28.

H. N. OLIPHANT, M.D., Forest, Ind., to Miss Florence Katherine Travis of Monroe, at Frankfort, Ind., July 6.

Deaths

Albert G. Sprague, M.D. Jefferson Medical College, Philadelphia, 1859; a member of the Rhode Island Medical Society; for many years president of the Rhode Island State Board of Health; assistant surgeon of the Tenth, and afterward of the Seventh Rhode Island Volunteer Infantry during the Civil War; for several terms a member of the General Assembly from Warwick; twice president of the Warwick town council, and health officer of Warwick for more than 20 years; died at his home August 11, from angina pectoris, from which he had suffered many years, aged 71.

Franklin Theodore Howe, M.D. Georgetown University School of Medicine, Washington, D. C., 1867; a veteran of the Civil War; for many years a clerk in the war department and internal revenue department; later chief clerk of the board of public works of the District of Columbia; for more than 30 years editor and manager of newspapers in Washington; died at his home in Brookland, D. C., July 28, from heart disease, aged 66.

Franklin J. Evans, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1884; a member of the American Medical Association; president of the Delaware County (Pa.) Medical Association; a member of the staff of the Chester (Pa.) hospital; local surgeon to the Baltimore & Ohio Railroad; died at his home in Chester, July 29, from kidney disease, after an illness of one week, aged 45.

Louis C. Jacobson, M.D. Rush Medical College, Chicago, 1903; formerly of Elroy, Wis.; a veteran of the Spanish-American War; a member of the Michigan State Medical Society; acting assistant surgeon U. S. Navy; on duty at the Norfolk (Va.) Naval Hospital; died in the King's Daughters Hospital, Portsmouth, Va., July 20, from typhoid fever, after an illness of three weeks, aged 29.

Elias J. Marsh, M.D. College of Physicians and Surgeons in the City of New York, 1858; a member of the American Medical Association; surgeon during the Civil War; for many years chief medical director of the Mutual Life Insurance Company; a member of the first board of free library trustees of Paterson, N. J.; died from heart disease August 3, at his home in Paterson, aged 73.

Charles Armstrong Redick, M.D. Western Pennsylvania Medical College, Pittsburg, 1888; of Bellevue, Allegheny, Pa.; formerly a member of the staff of St. John's Hospital, Pittsburg; later of the staff of the Massachusetts State Tuberculosis Sanatorium, Rutland, and for the last year a resident of Baltimore; died in Silver City, N. M., from tuberculosis, after an illness of a year, July 27.

Lawrence E. Whitney, M.D. Homeopathic Medical College of St. Louis, 1879; of Carthage, Mo.; city physician of Carthage, Mo.; was found unconscious July 30 near Carthage, where he had been making a professional call, and died in a hospital in that city a few hours later, aged 55. Foul play is feared. The autopsy showed that death was caused by concussion of the brain.

Filson Cooper, M.D. Eclectic College of Medicine, Cincinnati, 1869; a member of the twenty-fifth General Assembly of Iowa from Montgomery County, and a pioneer practitioner of southwestern Iowa; died at his home in Villisca, July 27, from pneumonia, after a short illness, aged 71.

Irl Dycus (License, Texas, 1907); a member of the American Medical Association; of Archer City, Texas; was killed and his mutilated body was found July 28 on the tracks of the Fort Worth & Denver Railroad near Wichita Falls, Texas, aged 22. Foul play is suspected.

John A. Aulguire, M.D. Kansas City (Mo.) Hospital College of Medicine, 1888; a member of the American Medical Association; who was injured at the time of the destruction of his hospital at Pocatello, July 26, died as the result of his injuries two days later, aged 47.

Ezra H. Tobias, M.D. Ohio Medical University, Columbus, 1898; a member of the American Medical Association; physician to the board of health of Bowling Green, Ohio; died suddenly in the office of a physician in that city, August 2, from heart disease, aged 39.

Carl E. Waldeck, M.D. Cleveland Homeopathic Medical College, 1895; formerly of Cleveland; died at his father's home in that city from paralysis, the result of a fall from a hospital which he was building in Goldfield, Nev., three months before, aged 45.

John W. O'Falvey, M.D., L.R.C.S. Ireland, 1853; a veteran of the Crimean War; formerly a member of the Canadian parliament; of Marquette, Mich.; died in St. Mary's Hospital in that city, August 1, from pneumonia, after a short illness, aged 84.

Eliza Jane Wall, M.D. New York Medical College and Hospital for Women, New York City, 1884; formerly of Denver, Colo.; died in Goshen, N. Y., August 1, from bronchitis.

Deaths Abroad.

Henry Ashby, M.D. London, 1878; M.R.C.S. London, 1873; lecturer and examiner on diseases of children at Owens College and Victoria University, Manchester; senior physician at the Manchester Hospital for Children; a member and officer of many learned societies; a strong advocate of the establishment of municipal crèches for motherless children or children with working mothers, of a proper milk supply for children, and of the proper ventilation of the homes of the working classes; one of the most eminent specialists in the diseases of children in Great Britain; died at his home in Didsbury, July 6, aged 62.

Sir John Thomas Banks, K.C.B., M.D. University of Dublin, 1843; F.R.C.P. Ireland, 1844; and president of the institution from 1869 to 1871; regius professor of medicine in the University of Dublin in 1880; physician in ordinary to the queen; and in 1889 made knight commander of the Order of the Bath in recognition of his distinguished services; first president of the Royal Academy of Medicine in 1882; and in 1887 president of the British Medical Association; for more than half a century a distinguished practitioner of Dublin; died July 16, from bronchitis, after a short illness, aged 96.

E. R. Hagen, M.D., formerly professor of laryngology and otology at the University of Leipsic, and a noted writer and translator of works on his specialty, died at Leipsic, July 20, aged 85. He has lived in retirement during the last 15 years on account of a serious eye trouble.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

Public Instruction in Maryland.

At the 1907 session of the Medical and Chirurgical Faculty of Maryland a Committee on Public Instruction was established whose duty it was to enlighten the public in matters pertaining to the public health. During its first year the work of this committee was carried on largely by lectures, a series of so-called "major lectures" being given by leading medical men on a variety of health topics of public interest, while an equally important work was carried on among the various social organizations, such as church societies and women's clubs, through the medium of "minor lectures." An educational campaign has now been instituted through the newspapers. Arrangements have been made to furnish each of the two leading publications of Baltimore with a weekly health bulletin on subjects of public interest and of value for the preservation of public health and the prevention of disease. These bulletins have appeared from time to time in the Sunday papers and have attracted much attention, being issued "under the jurisdiction of the Medical and Chirurgical Faculty of Maryland." After carefully considering whether these articles should be published anonymously or signed by the writers, it was decided to publish them as coming from the Medical and Chirurgical Faculty.

The method followed by the Maryland Society is an excellent one and should be imitated by many other state associations. It is in harmony with the recommendations of the House of Delegates of the American Medical Association.

Massachusetts Forbids Objectionable Advertising.

The following law was passed by the Massachusetts Legislature at its last session:

AN ACT TO PROHIBIT THE DISSEMINATION BY ADVERTISEMENTS OR OTHERWISE OF INFORMATION CONCERNING CERTAIN DISEASES.

Be it enacted, etc., as follows: Whoever publishes, delivers, distributes or causes to be published, delivered or distributed, any advertisement, statement or notice, other than a label which is attached to a bottle or package of medicine, or which is contained in a sealed package of medicine, describing the causes, symptoms, details or effects of a venereal disease, or of a disease, infirmity or condition of the sexual organs, for the purpose of calling attention to or advertising a person or persons from whom, or an office or place at which, information, treatment, or advice may be obtained concerning such diseases or conditions, shall be punished by imprisonment for not more than six months or by a fine of not less than fifty nor more than five hundred dollars, or by both such fine and imprisonment. But the prohibitions of this act shall not be deemed to apply to the printing or delivering in sealed packages outside of this commonwealth of books, pamphlets or circulars containing such advertisements; nor to newspapers printed outside of this commonwealth.

Campaign for a New Law in Pennsylvania Inaugurated.

The Philadelphia Ledger contains, July 21, an extended outline of the plan of campaign adopted by the physicians of Pennsylvania in an effort to secure adequate medical laws for the Keystone State. At a meeting at Willow Grove Park, Philadelphia, July 22, an address was made by Dr. Joseph D. Bryant, ex-president of the American Medical Association, on "Medical Legislation." It is said that one of the recent occurrences which has aroused professional sentiment along this line is the murder of Dr. W. H. Wilson, who was apparently for a number of years engaged in a lucrative and extensive illegal practice. Following the notoriety occasioned by his death, an investigation was undertaken which shows that "Dr." Wilson was never registered in the state of Pennsylvania and had been practicing for years in violation of the existing law.

The *Ledger* states that an effort will be made to establish a single examining board which shall demand the same standard of proficiency of all applicants for license to practice in the state regardless of the school to which they belong or of the system of treatment which they intend to follow. The fight will be particularly waged against the existing eclectic examining board, which is said to license men who have been rejected by the other boards or could not possibly secure a license in any other way. An effort will also be made to specify conviction for a felony as one of the grounds for revocation of license.

Any improvement or amendment of the existing medical practice act of Pennsylvania will be hailed with approval by those interested in the proper and effective restriction of the practice of medicine. It has long been known that the medical practice act of Pennsylvania was utterly inoperative. The fact that any individual could keep up a lucrative and disreputable line of practice for years in the largest city in the state without ever being detected is sufficient comment on the value of the law as it stands. One fatal defect in the present medical practice law of Pennsylvania is the triple system of boards, each of which gives examinations and passes candidates for a license without regard to any action taken or standard established by the other two boards. But the vital objection to the present law is the complete absence of any effective system of registration. The examining boards do not preserve any records of the applicants whom they pass, since these names are simply endorsed and turned over to the medical council. The medical council preserves no record at

all; in fact, this council is made up of an equal number of physicians and laymen, the latter apparently considering their official duties most unimportant and unworthy of serious attention. The license is not legal until registered with the prothonotary (or county clerk) of the county in which the licentiate intends to practice. Not the slightest attempt is made by the examining boards, the medical council or the county officers to keep or preserve any records which will be of practical value. As it can not be shown in any case that a given individual is not legally qualified to practice medicine in the state, it is manifestly useless to attempt any prosecutions for violations of the act.

The result is that the law is practically a dead letter and is not of the slightest value to the people for whose protection it was supposedly enacted. There is not to-day in the state of Pennsylvania a single official, either layman or professional, who has the slightest idea how many physicians are legally qualified to practice medicine in the state; neither is there any place in the state where information can be obtained as to who have a right to practice. The only complete copy of the existing records regarding the medical profession of the state of Pennsylvania is in the vaults of the American Medical Association, and this is necessarily imperfect, owing to the slipshod manner in which the county officials have kept the records.

It is a disgrace to the state of Pennsylvania that such a law should ever have been enacted or that, having been enacted, it should be allowed to remain on the statute book. It is to be hoped that this condition of affairs will be speedily and effectively remedied at the next session of the legislature.

Review of Medical Organization in North Carolina.

The presidential address of Dr. J. Howell Way, delivered at the fifty-fifth annual session of the Medical Society of the State of North Carolina, on "Random Notes on the History, Aims and Purposes of the State Medical Society," appears in the July *Charlotte Medical Journal*. After some preliminary remarks and a review of the early days of the organization and of the eminent men who founded and conducted the state society in past years, Dr. Way considered the three periods of greatest activity in medical organization, namely, the closing years of the eighteenth century, when a considerable number of state medical societies were organized and medical colleges established; the middle of the nineteenth century, when the American Medical Association was organized and a number of other state associations came into existence and the present movement for medical organization.

In considering the early history of the Medical Society of the State of North Carolina, Dr. Way brought out the interesting fact that in 1850 a system of county medical societies, subordinate to the state society and sending delegates to the annual meeting, was organized in North Carolina, under the presidency of Dr. Knox. He says:

> We have merely reverted to primal principles, or in other words we are now building up the medical organization of the state from the foundation upward instead of from the top downward. The division of our present society session into a House of Delegates and the General Meeting was the inevitable, logical and necessary result of activities which greatly increased our annual attendance. . . . Our House of Delegates, the legislative and business body of the society, being made up of the elected representatives of the local profession from every section of the state, certainly gives the fairest consideration of business propositions, and in voting in the various elections each section of our great state association votes exactly its proper and legitimate strength, thus eliminating the possibility of men residing within a radius of 50 miles or less of the society's meeting place exercising undue influence in the society's affairs. . . . The state association in 1850 recommended the enactment of a law providing for a general registration of births, deaths and marriages—certainly a worthy suggestion and one which after fifty-eight years is still a long-felt want.
>
> In 1860 there were forty county societies represented at the state meeting. This splendid and ideal organization was disrupted by the Civil War.

Reviewing the State Board of Medical Examiners, Dr. Way summarizes the laws adopted at different times. In 1859, after several unsuccessful attempts, a medical practice act was placed on the statute books and is still in force. The penalty clause was added in 1885 and the registration clause in 1888. The original law placed the selection of the Board of Medical Examiners in the hands of the medical society of the state, with the added provision "except when the legislature chooses to exercise this right."

Dr. Way also calls attention to a decision of the state Supreme Court bearing on the validity of sectarian medical legislation. He says:

> There is absolutely no more excuse or reason for the existence in North Carolina of a state board of medical examiners to examine and to certify to the professional capacity of medical practitioners of electro-therapeutics or hydrotherapy or ophthalmology or any other special method or theory of practice, than there exists the necessity of a special examination, before the supreme court of attorneys applying for state license, on particular methods of professional procedure in practice about which even the best lawyers may have diverging views. . . . There yet exists a stigma on the science of medicine in North Carolina irremovable until the last vestige of sectarian medicine practice legislative enactment is erased from our statute books and all individuals essaying the practice of healing the sick men, women and children, are required to stand the same examination on the formation, nature, character and diseases of the human machine they propose to treat.

Dr. Way's address should be read by all those interested in medical organization or in doubt as to its effectiveness.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES.

DR. JOHN H. BLACKBURN, DIRECTOR.
BOWLING GREEN, KENTUCKY.

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Twelfth Month.

THIRD WEEKLY MEETING.

Diseases of Cornea.

Suppurative Keratitis.
Ulcers of Cornea: Etiology, varieties, treatment.
Neuroparalytic and Lagophthalmic Keratitis.
Non-Suppurative Keratitis.
Phlyctenular Keratitis: Symptoms, treatment.
Specific Interstitial Keratitis: Signs of hereditary syphilis, physiognomy, teeth, lymph glands, bones, ears. Symptoms, treatment in detail.
Non-specific Interstitial Keratitis: Causes, symptoms.
Vascular Keratitis, Pannus: Pathology, symptoms, treatment.

Diseases of Iris.

Iritis: Varieties: (a) serous, (b) plastic, (c) suppurative, gummatous and tubercular.
Symptoms: Pain, photophobia, loss of vision. Changes in form and appearance of iris.

FOURTH WEEKLY MEETING.

The Eye During and After the Exanthemata.

Varieties of lesions which may occur and treatment of each.
Careful observation necessary whether eye is affected or not.
Advice by attending physician.

The Diagnosis of Cataract.

General and partial cataracts.
Congenital, traumatic, secondary, senile cataract.
Diagnosis, symptoms and physical signs.
Differential diagnosis.
Care and advice by family physician.

The Diagnosis of Glaucoma.

Importance of immediate recognition and attention.
Primary and secondary. Acute, subacute and chronic.
Symptoms and physical signs. General symptoms.

Foreign Bodies in Eye.

Superficial, under lid and on cornea.
Deeply imbedded in cornea.
Punctured wounds of cornea and other coats.
Foreign bodies entering globe, (a) remaining, (b) not remaining.
Penetrating wounds of cornea and other coats.
When to enucleate, and when to try to preserve vision and ball.

Society Proceedings

COMING MEETINGS.

American Public Health Association, Winnipeg, Can., Aug. 25-28.
American Acad. of Ophthal. and Oto-Laryng., Cleveland, Aug. 27-29.
Wyoming State Medical Society, Sheridan, Aug. 28.
New Mexico Medical Society, Albuquerque, Sept. 2-3.
Washington State Medical Association, Walla Walla, Sept. 2-4.
South Dakota State Medical Assn., Yankton, Sept. 2-4.
Medical Society of the Missouri Valley, Council Bluffs, Sept. 3-4.
Colorado State Medical Society, Denver, Sept. 8-10.
Med. Soc. of the State of Pennsylvania, Cambridge Spgs., Sept. 14-17.
American Assn. of Obstet. and Gynecol., Baltimore, Sept. 22-24.
American Dermatological Association, Annapolis, Sept. 24-26.
Kentucky State Medical Association, Winchester, Sept. 23-25.
Con. of State and Prov. Bds. of N. A., Washington, Sept. 25-26.
Internat'l Congress on Tuberculosis, Washington, Sept. 21 to Oct. 12.

MEDICAL SOCIETY OF NEW JERSEY.

One Hundred and Forty-second Annual Meeting, held at Cape May, June 18-19, 1908.

New Officers.

A list of the officers elected for the ensuing year appeared in THE JOURNAL, July 18, 1908, page 232.

Joint Affections in Children.

DR. WILLIAM K. NEWTON, Paterson, in the oration on medicine, gave two reasons for the ignorance of the general practitioner regarding infectious arthritis and for the lack of fulness and definiteness in the literature on this subject: the custom of calling all cases of arthritis rheumatism, and the attempt to group all these joint affections under the title of Still's disease. Infectious arthritis, he said, might be the result of any of the infections with pus-producing organisms. He excluded those caused by tuberculosis, syphilis, and acute rheumatic fever, and confined his attention to the less understood cases of infectious arthritis, considering their etiology, pathology and symptoms.

Endothelioma of the Pleura.

DR. HENRY S. PATTERSON, New York, reviewed the literature of the subject, including ninety-six cases. Malignant new growth of the pleura should be suspected when bloody fluid is found in the chest. A number of conditions must be excluded in making the diagnosis, particularly tuberculosis, aneurism and primary new growth elsewhere. Persistent bloody fluid, not tuberculous, with progressive emaciation, usually accompanied with fever, made a suggestive picture. Sometimes cells were found in the fluid. The only absolutely sure method of diagnosis was by making a microscopic examination of tissue that had come to the surface by extension of metastasis. The disease must be treated at first by aspiration. The skin might be frozen with ethyl chlorid, care being taken to allow the frost to wear off before puncturing; otherwise the needle would have to go through a tough, leathery layer and run the chance of bending or breaking. The subsequent pain was relieved by local applications and by the coal-tar products, with or without morphin. In the last stages morphin to the point of toxic effect was indicated. Symptoms referable to metastasis must be treated as they arise. The only justification for surgical treatment was the presence of purulent effusion.

DISCUSSION.

DR. PHILIP MARVEL, Atlantic City, asked whether the malignant growths of the pleural cavity are more liable to metastases than are similar tumors elsewhere.

DR. CHARLES A. ROSENWASSER, Newark, thought it important to do all that could be done to afford relief in cases pronounced inoperable, and asked whether Dr. Patterson's experience with methylene blue in cases of inoperable sarcoma had been that the patients had been made more comfortable by its use, and whether life had been prolonged.

DR. N. L. WILSON, Elizabeth, said that in sarcoma of the antrum he thought it better to let the tumor alone and keep the patient under the influence of an opiate.

DR. H. S. PATTERSON said that he would never have been able to recognize the condition in this case had it not been for an article by Dr. Delafield reporting similar cases. The diagnosis was confirmed at autopsy. Theoretically, one would imagine that the pleura, being so rich in lymphatic drainage, would form a primary site from which metastases would be frequent and extensive; but, on the contrary, the cases in which metastases was mentioned represented only about 20 per cent. of the total. He had had no experience with methylene blue in this class of cases, and stated that his reference to malignant growths of the antrum was not in relation to operative interference, but simply as one of the means of eliminating primary growths elsewhere than in the pleura.

Medical Expert Testimony.

DR. EDWARD J. ILL, Newark, in his presidental address expressed regret that the Governor of New Jersey had seen fit to appoint but one medical man on the State Board of Health, this one being a retired physician. He stated that the society is working under a disadvantage, owing to a lack of competent legal advice, and suggested that it engage counsel to defend the members in malpractice suits and do other necessary legal work. He thought that damage suit expenses should be paid by the society; because the accused practitioner was defending not only himself, but every physician in the state. The difference between an ordinary and an expert witness, he said, was that one simply states a fact and the other expresses an opinion. An ordinary witness who does not speak the truth might be prosecuted, but an expert could not be reached by the law for expressing a false opinion. The opinions of medical experts carried no weight, because even those who were honest were discredited by what had become a pernicious system. Dr. Ill thought that the law should be amended so as to make such scandalous conflicts of opinion impossible. The man who sold his opinion, he said, should not be allowed to remain a member in good standing in the New Jersey Medical Society. The profession should put an end to a system that was already dead, in that it had outlived its usefulness.

When Shall the Physician Distrust His Own Judgment in Surgical Matters.

DR. MAURICE H. RICHARDSON, Boston, in the oration on surgery, said that it was most important that the diagnosis be made early enough to check the disease in the beginning; and on the shoulders of the physician, because he was the first in the field, rested the responsibility as to whether it should be treated medically or surgically. The errors of surgery were often the result of a too favorable prognosis based on a wrong diagnosis; and the largest proportions of these wrong diagnoses were due to physicians, who were not experts in the diagnosis of tumors. If there were strong possibilities of a serious or fatal lesion that the differential diagnosis could not rule out and for which the only hope lay in immediate surgical intervention, then must the physician distrust his own opinion, even if that opinion is favorable. It was common for the surgeon to shift to the physician the responsibility for surgical failure. When there was any doubt as to the placing of the responsibility, the surgeon should be eager to assume the burden. There were many cases, also, in which the physician should distrust not only his own judgment, but that of the surgeon. He should distrust the judgment of any surgeon who had failed to make a thorough examination. Surgeons did not always appreciate the weight of responsibility that the physician felt toward the family of his patient in recommending an operation. Dr. Richardson thought that the more intimate becomes the association between these two branches of medicine, the better would be the results.

(To be continued.)

Medicolegal

Need File Certificate Only in County of Residence.

The Court of Criminal Appeals of Texas says, in Person vs. State, that Article 440 of the penal code of that state of 1895 provides: "If any person shall hereafter engage in the practice of medicine in any of its branches or departments for pay, or as a regular practitioner, without having first filed for record with the clerk of the district court in the county in which such person may reside or sojourn a certificate from some authorized board of medical examiners, or a diploma from some accredited medical college, he shall be punished as prescribed in Article 438." It was evidently the purpose and intent of the legislature that, for the protection of society, all persons undertaking to practice medicine as physicians, or act as physicians, should, before being permitted so to do, be required to furnish evidence of their skill and preparation by being compelled to file in the office of the district clerk the evidence of their qualification, such instrument, either certificate or diploma, to be filed in the county of their residence, or where at the time they were sojourning. The court thinks it clear that where the physician had once complied with the law by filing a certificate or diploma in the county where he resides that he would and should be permitted to accept professional calls and practice in any adjacent county, and as for that matter throughout the counties of the state where his services might be needed, and that it would not be required of him that he must file such certificate or diploma where he might be called after he had, in the terms of the law, filed such diploma in the county where he resided, or where at the time he might sojourn.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal.

August 1.

1 *Treatment of Laryngeal Stenosis, Including Intubation by the Dorsal Method. L. Fischer, New York.
2 *Method for Preventing Infection from the Skin During Surgical Operations. J. S. Horsley, Richmond, Va.
3 Sarcoma of the Tonsil. J. E. Rhodes, Chicago.
4 Syphilis Communicated in Assault and Battery. H. G. Watson, New York.
5 Dies Caniculares (concluded). J. Knott, Dublin, Ireland.
6 *The Solvent Action of the Sulphocyanates on the Lime and Magnesium Deposits in the System. W. Bentley, Athens, Ohio, and B. R. LeRoy, Athens, Ohio.
7 Impetigo Contagiosa. R. T. Sutton, Kansas City, Mo.

1. **Laryngeal Stenosis.**—Fischer discusses acute laryngeal stenosis. This, he says, is never found in syphilis, the history of the stenosis in which is of an altogether different type. The bacteriologic diagnosis of acute stenosis is not always easy, but the treatment is identical, whether the organism be the Klebs-Loeffler bacillus, the influenza bacillus, or the streptococcus, viz.: mechanical relief of the respiration. Fischer cites as a diagnostic point that, if a child appears in good health and awakens suddenly at night without having given evidence of disease the day before, such croup is usually of the catarrhal type and is not to be classed with that serious form of laryngeal stenosis due to diphtheritic pseudomembranes. Diphtheritic laryngeal stenosis usually appears slowly. It comes on gradually. A child with diphtheria usually shows malaise during the period of incubation and anorexia; also hoarse, barking cough, labored breathing, swollen glands of neck, rapid pulse, usually not very high temperature. After the respiratory difficulty the worst effect is on the heart. Fischer then discusses intubation, which should not be postponed in private practice, as can be more safely done in a hospital with expert assistance always at hand. The pulse must be the guide as to the urgency of operation. A very rapid pulse, or one becoming thready, and an intermittent pulse are danger symptoms which demand relief. Procrastination means death, hence it is wise not to resort to emetics and thus to delay the chances of recovery. In the treatment three important points should be remembered: They are: 1, To relieve the stenosis by intubation and thereby prevent asphyxia; 2, to inject sufficient antitoxin to neutralize the toxemia present; and, 3, to restore inactive functions by nutrition and by hygienic means, also giving the required amount of stimulation to strengthen the heart and stimulate all the emunctories to activity. Fischer describes the technic of the dorsal method of intubation. He discusses false passages and says that if a false passage has been produced and we are unsuccessful in our attempts at intubation, then it is much wiser to resort to tracheotomy, rather than to risk the danger incident to exhaustion from both the deficient oxygenation and the heart strain in the struggling child.

He considers recurring laryngeal stenosis after intubation, which, he says, can be summed up in the single word "traumatism," and paralysis of the vocal cords. The prevention of recurring laryngeal stenosis in ordinary membranous diphtheria calls for gentleness, removal of tube every five days, and the O'Dwyer plan of immersing a rubber tube in a hot solution of gelatin containing 25 per cent. of powdered alum. Alternative intralaryngeal medications are given. If an unskilled operator must intubate, then a hypodermatic injection of 1/100 grain strychnin or ½ grain tablet caffein sodium benzoate may be given prior to the operation. It is also wise to have a mustard foot bath ready to stimulate the circulation in case of collapse. If the circulation does not improve after the mustard foot bath given at a temperature of 100 F., then a hot saline colon flushing at a temperature of from 115 to 120 F. may be given. In the treatment of extubation with recurring laryngeal stenosis, especially in a very nervous and fretful child, Fischer orders some antispasmodic treatment 24 hours before extubation. From 5 to 10 grains of sodium bromid, depending on the age of the patient, may be given in water or in milk, every 3 hours. Codein in doses of from 1/10 to ¼ grain, depending on the age, may be given during the evening before extubation, to insure rest and quiet to the nervous system.

2. **Prevention of Skin Infection.**—To avoid infection in operation from the deeper layers and cut edges of the skin, Horsley tucks around the edge of the cut skin a towel folded in the middle. The towel is fastened by small tenacula or small safety pins; usually three on each side are sufficient. A short distance from each angle of the wound the two towels are clamped together with a hemostatic forceps.

6. **Solution of Lime and Magnesium Deposits.**—Bentley and LeRoy, finding, from a study of the saliva (*New York Med. Jour.*, March 7, 1908, abstracted in THE JOURNAL, March 21, p. 991), that there is always precipitation of the calcium and magnesium, held in solution in normal saliva, by the increased content of ammonia and a simultaneous decrease or entire absence of the sulphocyanates, have made a study of these substances. They have used sodium sulphocyanate (the least poisonous to man of all the sulphocyanates) in small doses in arteriosclerosis, with prompt and rapid relief. LeRoy has never had occasion to give more than one grain (.065) of the drug at a dose, often not more than a fraction of a grain well diluted. They are making an exhaustive study of the solvency of lime and magnesium calculi, and think it safe, even now, to say that in this drug we have a remedy which will not only slowly dissolve the already formed stone, but will prevent the formation of the calculi, or other deposit in the system when the sulphocyanids are present in sufficient quantities. They give this caution: "Do not give the sulphocyanates for any length of time, or in large doses, without carefully watching the patient and making repeated measurements of the blood pressure with the sphygmomanometer, and keeping an accurate record of the case; in this you will learn that large doses of the drug will not be called for, nor will you give them when you will have learned with what ease small doses will do the work." The details of laboratory experiments as to the solvency of calculi are given.

Boston Medical and Surgical Journal.

July 30.

8 *Occurrence of Infantile Paralysis in Massachusetts in 1907. R. W. Lovett, Boston.
9 *Osteosarcoma of Knee Joint. E. G. Abbott and T. J. Burrage, Portland, Maine.
10 *Abuse of Alcohol in Treatment of Children's Diseases. C. W. Townsend, Boston.
11 Modification of the Drigalski-Conradi Litmus-Lactose Agar, for Isolation of *B. Typhosus*. D. Gregg, Boston.

8. **Infantile Paralysis.**—Lovett analyzes carefully the literature and investigations on the subject, and presents briefly the data and conclusions suggested as to the etiology of the disease. He then reviews the cases that occurred in Massachusetts in 1907 in regard to distribution, relation to traumatism and condition preceding onset, and sums up the evidence in regard to etiology. The sudden febrile onset and the character of the onset suggest infection, and there is a general impression that the disease is infectious, but the case is not proved by positive bacteriologic data, so far collected, and most bacteriologic examinations are negative. But in this case negative evidence does not disprove the theory of infection, for the organism present, if one exists, may liberate a toxin and disappear. The seasonal occurrence, the age of the children, and the frequent association of intestinal disturbance with the onset suggest some intestinal infection as the possible source of the disturbance. The disease follows the curve of summer diarrhea as to age and season, and follows the curve of cerebrospinal meningitis as to neither. From the evidence it seems reasonable to suspect that some bacillus, probably an anaërobic one, reaches the intestines in milk and there liberates a toxin which is absorbed and carried to the spinal cells by the blood current. Hence, the findings in the cerebrospinal fluid withdrawn by lumbar puncture are negative in most cases. It can not be regarded as certain, however, that infantile paralysis is always caused by the same organism, nor even that it is a pathologic entity. It may be simply the clinical expression of the reaction of the spinal cord to one of the several causes, of which infection may well be one. A similar pathologic condition has been seen to arise from lead poisoning, from the experimental injection of bacteria in rabbits, and from the injection of toxin in guinea-pigs. Allowance must also be made for the possible influence of traumatism, dampness, overfatigue, the exanthemata, and foci of pyogenic infection, as possible causes of infantile paralysis, or a disease indistinguishable from it. At present, he states, we must observe and study and collect material, remembering that we may be dealing (1) with a specific infectious disease; (2) with an infection due to one of several organisms, or (3) with a disease of more than one origin, not always necessarily infectious. The data contained in this report are not sufficient to establish the theory of contagion, although the distribution of the disease, its spread from foci, the involvement of contiguous towns, the spread along lines of most frequent travel, and the suggestive histories given may well warrant us in suspecting it and collecting further data, and no harm could arise from the isolation of these patients from other children during the acute attack.

9. **Osteosarcoma of Knee.**—Abbott and Burrage discuss this condition at large and report a case. They conclude that a radical measure, such as amputation, for the central variety of sarcoma of knee-joint is advisable, because (a) early and high amputation gives the largest percentage of recoveries without recurrence; (b) treatment by the use of toxins, which seems a useful adjunct, though when used alone, according to present statistics, gives only 15 per cent. of cures in all varieties, can not be entirely depended on; (c) immediate death following operation seldom occurs if the previous condition of the patient is fair; (d) resection is of doubtful benefit, and where there is so much at stake should not be attempted.

10. **Alcohol for Children.**—Townsend contends for the utmost caution in using alcohol in children's diseases. He quotes a case in which he was called in consultation and found a 22-months-old infant had been having a dram of whisky every hour, originally prescribed during an acute attack of pneumonia, besides an alcoholic proprietary food. The diagnosis of meningitis was modified, the whisky stopped and the child did well.

Medical Record, New York.

August 1.

12 *Tuberculosis in Connecticut, Especially in Rural Connecticut. S. J. Maher, New Haven.
13 Autochthonous Urethral Calculi. H. A. Fowler, Washington, D. C.
14 *The Esophagoscope as a Diagnostic and Therapeutic Aid in Esophageal Obstruction. J. S. Myer, St. Louis.
15 Surgical Technic Without the Use of Antiseptics; With Report of Forty-one Consecutive Successful Abdominal Operations. W. H. Dukeman, Los Angeles.
16 *Epilepsy in Private Practice, Especially That from Reflex Causes. C. G. Polk, Pensauken, N. J.

12. **Tuberculosis in Connecticut.**—Maher gives an interesting account of observations and researches on tuberculosis in rural Connecticut, and draws the following conclusions:

1. Tuberculosis was a disease of the Indians of Connecticut before the white man came.
2. Human tuberculosis has occurred in all parts of rural Connecticut—highland, lowland and plain.
3. There is considerable evidence to show that in rural Connecticut human tuberculosis occurs most frequently in badly drained districts, and in houses with damp cellars.
4. The reports received do not support the view that in rural Connecticut cases of consumption occur frequently in close proximity to insanitary barns or coops.
5. While the preponderance of testimony is that in rural Connecticut only a minority of cases of consumption have been followed by other cases in the same house or the same family, the evidence in favor of the hypothesis of "consumption houses" and "consumptive families" is often very striking and is deserving of careful consideration.
6. The density of the population of the counties of Connecticut bears no relation to the tuberculosis death rate of said counties.
7. There has been a very marked decline in the tuberculosis death rate for the past fifty years, and this decline was as steep, but not so regular, before the discovery of the tubercle bacillus as it has been since.

14. **The Esophagoscope.**—Myer describes the history of esophageal examination and briefly refers to the anatomy of the esophagus and the difficulties of its examination. He reports cases of foreign bodies and other forms of esophageal obstruction, illustrating the usefulness of the esophagoscope as a diagnostic aid. He uses the Killian instrument, the patient being in the sitting posture, and considers anesthetization, though not always necessary, a very wise procedure. He describes the technic.

16. **Epilepsy.**—Polk points out that he can not find a single course of treatment recommended by high authorities that has not been set aside as valueless by other authorities entitled to equal respect and credence. He insists that reflex epilepsy does exist, and holds that the denial of that fact by some, causes many cases of reflex epilepsy to become permanent, when in earlier stages it would have yielded to correction of defects. The general treatment he does not discuss, as it is so various and disputed, and each practitioner will select for himself and be guided by his own results. The hygienic treatment he holds of equal importance with the medicinal, and he says that a course of treatment along comprehensive lines should be mapped out and the patient be required to give reports as to his adherence to it. A copy of the following rules may be given him. They do not cover every case, but there can be no mistake in the observance of them:

Have meals regularly, with the last meal of the day early and light. Do not continue eating until there is a sense of fulness. Do not eat peas, beans, veal, much meat, or cereals. A vegetable diet is the best. Fish and milk are permissible. Use as little salt in the food as possible and forego tea and coffee. Do not eat much at one sitting. Keep the bowels free and the intestinal tract aseptic by the use of some antifermentative, like salol or betanaphthol. Flush the colon frequently. Take warm salt baths, not remaining in the water sufficiently long to fatigue. Sleep with the head high and keep the feet warm at all times and especially at night. See that any defects in the eyes are corrected and do not use the eyes a long time without resting. If glasses are worn, have the frames straightened at regular intervals. Take as much out-door exercise as possible without fatigue. Spinal douches and massage should be taken regularly. If seizures come early in the day take 15 grains of sodium bromid before retiring.

Lancet-Clinic, Cincinnati.

July 11.

17 Colorado and the Eastern Pulmonary Case. W. A. Campbell, Colorado Springs, Colo.
18 Pregnancy When Complicated by Tuberculosis. H. A. Miller, Pittsburg.
19 Tracheobronchoscopy, Esophagoscopy and Gastroscopy. J. W. Murphy, Cincinnati.
20 Some Features of Femoral Hernia. W. D. Gaines, Cincinnati.
21 Obscure Fractures Discovered by Roentgen Examination. S. Lange, Cincinnati.

July 18.

22 *Mortality and Morbidity of Child-Bearing Women Could be Reduced to Minimum if Maternity Hospitals Were More in Favor With Profession and Laity. E. G. Zinke, Cincinnati.
23 Sympathetic Ophthalmia. L. D. Brose, Evansville, Ind.
24 Neurasthenia Gastrica, Nervous Dyspepsia or Dyspeptic Symptoms Due to Eye-Strain. C. R. Jones, Pittsburg.
25 Necessity of Added Emphasis in Teaching of Therapeutics and Pharmacology. W. A. Dickey, Toledo.
26 Penis Clamp in Treatment of Acute Gonorrhea. J. W. Miller, Cincinnati.

July 25.

27 Tuberculosis of Larynx. A. B. Thrasher, Cincinnati.
28 Résumé of Gallstone Factors. R. A. Bate, Louisville, Ky.
29 Gallstones as an Etiologic Factor in Diabetes. J. C. O'Day, Oil City, Pa.
30 Traumatic Pulsating Pleurisy. C. B. Van Zant, Denver, Colo.

22. **Maternity Hospitals.**—Zinke argues in favor of more maternity hospitals. There is an indifference in the profession to the study of obstetrics, a subject which involves grave responsibility, hard work, long hours and little or no pay. Hence many practitioners abandon midwifery in favor of less laborious and more profitable fields in medicine and surgery. Others, never intending to practice it, study it only so far as to meet the requirements for graduation. Others, again, in their early career, meet with only easy cases, and so believe themselves masters in obstetrics, requiring no further study than the mere accumulation of experience. Hence they persistently refuse to send obstetric cases to maternity hospitals, notwithstanding the dangerous environment of the home and the difficulty there of meeting complications. Zinke emphasizes the fact that "every physician, no matter how favorable his experience with obstetrics may have been, should always realize that pregnancy, from the beginning to the end, is, under the most favorable conditions, an event of grave importance." The hygiene of pregnancy, though often of the utmost significance, is ignored. The same may be said of pelvimetry, the diagnosis of the attitude of the fetus in utero, as well as the preparation for labor previous to the event. He holds the hospital the safest place for women to pass through the ordeal of labor, and asks why we hesitate to do with the child-bearing woman what it is now the custom to do with all difficult and complicated cases, medical and surgical, while the patient is yet in good condition. He discusses the reasons of the objections of the profession and the laity to the practice of obstetrics in hospitals.

American Journal of Obstetrics, York, Pa.

July.

31 *General Administration of Anesthetics. J. M. Baldy, Philadelphia.
32 Immediate vs. Deferred Operation for Intra-abdominal Hemorrhage Due to Tubal Pregnancy. J. E. Janvrin, New York.
33 *Id. E. E. Montgomery, Philadelphia.
34 *Id. C. C. Frederick, Buffalo, N. Y.
35 *The Time to Operate in Intra-abdominal Hemorrhage Due to Tubal Pregnancy. W. P. Manton, Detroit.
36 *Forty-one Cases of Tubal Pregnancy, with Two Deaths. A. L. Smith, Montreal.
37 *Immediate vs. Deferred Operation for Intra-abdominal Hemorrhage Due to Tubal Pregnancy. H. J. Boldt, New York.
38 *Pernicious Anemia and Pregnancy. P. Findley, Omaha.
39 *Hospital Histories. R. L. Dickinson, Brooklyn.
40 *Hospital Gynecology. R. L. Dickinson, Brooklyn.
41 *Second Report on Operations for Relief of Pelvic Diseases of Insane Women. L. Broun, New York.
42 *Intrapelvic (Subpubic) vs. Abdominal Method of Dealing with Mechanical Obstruction to Delivery. R. C. Norris, Philadelphia.
43 *Indications for Cesarean Section. B. C. Hirst, Philadelphia.
44 *Hygiene of the Eye in School Children. W. M. Carhart, New York.
45 *Recent Studies on Scarlet Fever. A. W. Williams, New York.
46 Symptomatology and Diagnosis of Lobar Pneumonia and Bronchopneumonia in Children. L. Kerr, Brooklyn.

31 and 33 to 37. Abstracted in THE JOURNAL, June 20, 1908, pp. 2100 and 2101.

38 to 43. Abstracted in THE JOURNAL, July 4, 1908, pp. 69 and 70.

44. **Hygiene of the Eye in School Children.**—Carhart summarizes his paper as follows:

1. The increase during late years in the number of children wearing glasses is due not to an increase in the number of weak or diseased eyes, so much as to the greater strain on the function of vision necessitated by our more extended use of the eyes for close work in the complex civilization of the present day.

2. The normal child is born hypermetropic and without astigmatism. The myopic child is either defective from birth or has acquired myopia from the stress of eyestrain through the "turnstile of astigmatism." Astigmatism is not congenital, but is practically always acquired in the normal child during the early years of life by excessive strain on the muscles of accommodation.

3. Kindergarten and primary work should be so arranged as to avoid strain on the muscles of accommodation of the eye in the plastic years of childhood. Hence, sewing and all weaving exercises should be limited in amount, if not absolutely eliminated.

4. Systematic study should be begun only when the delicate and soft tissues of the child's eyes have attained sufficient formation to resist distortion on moderate use of the accommodation. This means, that prolonged close work should not be allowed until the age of 10 or over. A child beginning systematic study at that age will, with suitable care, be able at 16 or 18 to acquire all the knowledge possible to its more precocious companion, and will have the inestimable advantages of normal eyes and healthy physique.

5. No young child should be encouraged to compete with its companions for prizes. Mental and ocular overstrain are the inevitable results of such educational monstrosities. In the primary schools especially there should be no grading of the children.

6. A child incapable of the prolonged use of the eyes at the proper age should not be classed as culpably lazy. In the majority of cases there will be found uncorrected refractive error.

7. Inability to concentrate the mental attention, and deficient powers of observation are often caused by bad visual memory resulting from eyestrain.

8. The symptoms and physical signs of eyestrain in children can be easily recognized, and there is no more brilliant success in medicine than that which follows the correction in children of refractive overstrain.

45. **Scarlet Fever.**—Williams refers to our lack of definite knowledge of scarlet fever, notwithstanding that it has been recognized as an entity since Sydenham's time. We do not know the chief site of the virus, and hence the chief source of infection; or how long the virus may remain infective after separation from the patient; or the exact period of incubation; or any real pathognomonic symptoms, for the rash is seen in other cases—e. g., after serum inoculation; desquamation may occur after any erythema, and the enlargement of papillæ on the tongue, which is regarded as pathognomonic, is often so slight as to be difficult to make out, and, moreover, it has been reported as occuring in other diseases. The discussion over Duke's "fourth disease" demonstrates the uncertainty. Little work has been done on the minute pathology. The only constant change is a hyperplasia of lymphatic tissue over the whole body. The only characteristic change is the bodies found by Mallory in 1903, and these have so far received but little corroboration. Field has examined by an improved technic skin from 20 living scarlet-fever patients and from 10 autopsies, with a number of controls, and has come to the conclusion that most, if not all, the bodies are degenerations of the cytoplasm of the host cells. None were found in living skin. The author has completed an examination of skins from 17 living patients and 33 autopsies, with 9 controls. She reports the findings and states that so far there is no evidence that they are living organisms; neither has she been able to demonstrate anything like a tiny organism within the larger bodies. She can not, therefore, agree with Prowazek in including scarlet fever in the group of diseases produced by what he calls "chlamydozoa." Future work is contemplated on the exudates and the superficial tissues of the mouth and nose, which are regarded as more promising sources of information. The streptococcus undoubtedly plays an important rôle in the secondary lesions and sequelæ of scarlet fever. The antistreptococcic treatment has been tried in too few cases to justify conclusions, but Williams regards the results so far as encouraging.

Military Surgeon, Carlisle, Pa.

June.

47 *Anti-Typhoid Inoculation in the British Army. Brevet Lieut.-Col. W. B. Leishman, Royal Army Medical Corps.
48 Operation for Radical Cure of Hydrocele by the Inversion of the Tunica Vaginalis. Major P. C. Fauntleroy, U. S. Army.
49 *Classification of the Effects of the Sun's Rays and of Artificial Heat. H. D. Corbusier, U. S. Army.
50 Diseases and Sanitary Conditions Among Alaskan Indians. Capt. P. C. Hutten, U. S. Army.
51 Ethyl Chlorid as a General Anesthetic in Minor Surgery. E. M. Blackwell, U. S. Navy.
52 Austro-Hungarian View of the Care of the Wounded on the Battlefield in Modern War. Staff Surgeon Bertold Reder, Vienna. (Translated by Capt. E. B. Vedder, U. S. Army.)

47. **Antityphoid Inoculation.**—Leishman describes the vaccine method adopted for antityphoid inoculation in the British army, under the following heads: 1, the method of preparing

and standardizing the vaccine; 2, the system adopted for carrying out inoculation; 3, the arrangements for the collection of statistics as to the results of inoculation. Two tables showing the incidence and mortality between the inoculated and uninoculated in the Seventeenth Lancers and the Royal Fusiliers, also the results of experimental work and particularly of antityphoid inoculation in seven large Indian stations from Jan. 1 to June 30, 1907, are given.

49. **Heat.**—Corbusier classifies the effects of the sun's rays, and points out that "sunstroke" and "heat stroke," as now used, are general terms. Sunstroke includes the effects, 1, of the actinic rays and, 2, of the heat rays of the sun. Heat stroke includes effects of, 1, the sun's heat and, 2, artificial heat. To be more exact, one term should be used to indicate only that condition caused primarily by the action of the ultra-violet or short rays, and another to indicate that caused by sun heat, with the possibility of some actinic action also, while a third term must indicate the effects of artificial heat alone. He discusses the subject at length and proposes the following classification:

1. Siriasis (insolation): That pathologic condition in which the actinic rays are the predominating factor; characterized by violent headache; vomiting; dryness of mucous membranes; very high fever, from 105 to 110 F.; rapid pulse, often irregular and intermittent; cyanosis; intensely hot skin, first moist then dry; deep or stertorous breathing; absence of corneal and other reflexes; subsultus tendinum and convulsions; unconsciousness; contracted or irregular pupils; scanty urine; coma or sudden death. These symptoms may occur while the patient is in the sun or may not manifest themselves until many hours after exposure.

2. Sunstroke (sun traumatism): Cases due chiefly to sun heat, but in which the actinic effect may play some part; characterized by sudden faintness and quick recovery; or else by mental and physical fatigue; thirst; headache; vertigo; confusion; photophobia; pain in the limbs; injected cornea; skin moist and cool; perhaps nausea and vomiting; rapid, shallow respiration, never stertorous; small, compressible pulse; normal or subnormal temperature; pupils normal or dilated; no complete loss of consciousness; reflexes present; perhaps irritable bladder; more rapid recovery than in siriasis. These cases occur when the patient has been exposed to the sun, particularly while undergoing physical exertion. This condition is often a precursor to a more severe attack developing into true siriasis.

3. Heat exhaustion (heat stroke): Effects of artificial heat alone; characterized by symptoms similar to those just mentioned; headache; vertigo; moist, cool skin; shallow respirations; small pulse; subnormal temperature, being characteristic.

Wisconsin Medical Journal, Milwaukee.

June.

53 Puerperal Fever in the Light of Our Present Day Knowledge. J. P. McMahon, Milwaukee.
54 *Prognosis in the Recoverable Psychoses. A. W. Rogers, Milwaukee.
55 Scopolamin Anesthesia. F. A. Stratton, Milwaukee.

54. **Recoverable Psychoses.**—Rogers concludes that the records of the large hospitals for the insane in this country and Europe show a percentage of recoveries from all forms of insanity, ranging from 50 to 60 per cent. If statistics were limited to recoverable cases, and if those cases treated at home were included, this would be augmented to nearly 75 per cent. The percentage of complete recoveries has been greatly increased as a result of more scientific methods of diagnosis and treatment. Contrary to popular prejudice, inherited insanity is far from a hopeless condition, many patients recovering, but recurrence is made more probable by the presence of this factor. The prime essential for recovery in the psychoses is that the patient come under proper treatment early. Fully 50 per cent. of those recovering began treatment in the first three months of the disease. Statements concerning prognosis in any type of insanity should always be guarded, and no definite opinion should be offered until ample time has passed for careful study and observation of the patient.

Colorado Medicine, Denver.

June.

56 *Abdominal Diagnosis as Tested by Operation. J. N. Hall, Denver.
57 Association of Gastric Ulcer with Other Intraperitoneal Lesions. H. D. Niles, Salt Lake City, Utah.
58 Acute Pancreatitis. W. A. Jayne, Denver.
59 Chronic Pancreatitis. R. C. Robe, Pueblo.
60 *The Reflexes in the Insane. A. L. Skoog, Pueblo.

56. **Abdominal Diagnosis Tested by Operation.**—Hall gives a summary of the results found on operation in 312 abdominal cases, of which 300 were in private practice and 12 in hospital work. The number of operators was 36, but all the cases were seen at least once by Hall. Correct diagnoses were found in 244 out of the 312 cases.

60. **Reflexes in the Insane.**—Skoog, as the result of a study of a number of cases, concludes that on comparing the tendon reflex symptoms in the mental disease of paresis with tabes dorsalis, a neurologic disease, it is noted that, whereas they are absent or diminished in the latter, in the former they are exaggerated or irregular in a large percentage of the cases. One exception in his group was accounted for by the fact that the case was a tabetic type of paralytic dementia with absence of deep reflexes. The frequent diminution or absence of the superficial reflexes in paresis is due to the general blunting of all peripheral sensations, and in the earlier stages abnormal distracting mental activities. The epilepties, high-grade imbeciles, senile and secondary dementias, drug habitués and intoxication psychoses give reflex findings which are similar. They all have a large percentage with decreased or absent superficial reflexes, and deep reflexes increased and decreased in a small, about equal number. The paranoia and dementia præcox cases present no marked or significant changes in the reflex action. In these there have as yet been demonstrated no definite macroscopic or microscopic changes in the brain.

American Journal of Surgery, New York.

July.

61 Removal of the Faucial Tonsils as a Means of Relieving Catarrhal Deafness. R. C. Myles, New York.
62 Intracranial Lesions of Otitic Origin. J. J. Kyle, Indianapolis.
63 *Plastic Radiography (Radiographs in Relief). G. M. MacKee, New York.
64 Prostatic Hypertrophy in the Aged. C. E. Bowers, Wichita, Kan.
65 Operative Indications in Dislocation of the Humerus with Fracture. C. P. Flint, New York.
66 Recurrent Dislocation of the Shoulder, Successfully Operated On; With Description of Technic. F. H. Albee, New York.
67 Nitrous Oxid with Oxygen as an Anesthetic Agent; Value of Warming the Vapor of Ether and Chloroform. J. T. Gwathmey, New York.
68 Thrombosis of the Lateral Sinus and Internal Jugular Vein Following Suppurative Mastoiditis, Caused by Acute Purulent Otitis Media; Operation; Recovery. J. L. Adams, New York.
69 Vaginal Cesarean Section in Eclampsia. J. O. Polak, Brooklyn.

63. **Plastic Radiography.**—MacKee describes the method of reproducing radiographs in relief, so that they have the appearance of sculptures in bas-relief. He explains the results obtained by this method and enumerates their advantages, which are obvious. Five illustrations are given which show the results well. The contrast between Figure 1, print of foot made directly from radiographic negative, and Figure 2, plastic reproduction of Figure 1, exemplifies well the advantages of the method.

Vermont Medical Monthly, Burlington, Vt.

July 15.

70 *Neurasthenia. S. W. Hammond, Rutland.
71 Address at Dedicatory Exercises of the Vermont Sanatorium for Tuberculosis. F. C. Partridge.
72 The Vermont Sanatorium. H. D. Chadwick, Pittsford.

70. **Neurasthenia.**—Hammond discusses the various theories and makes a plea for early diagnosis and prophylaxis in nervous exhaustion. He lays stress on the importance of beginning prophylaxis with the mother of the child in utero, directed toward removing all real or imaginary trouble from her life during the pregnant period, rendering it as tranquil as possible, and, if disease is present, combating it with all means at command. He particularly urges on physicians, as the only ones who can discuss the subject, the necessity for reading between the lines so as to divine a sexual factor, if present.

Pennsylvania Medical Journal, Athens.

July.

73 *Plea for Early Exploratory Laparotomy in Gastric Diseases of Doubtful Nature. W. L. Rodman, Philadelphia.
74 *Intestinal Tears Following Unoperated Appendiceal Abscesses and Their Medicolegal Relations. A. R. Allen, Carlisle.

75 *Clinical Significance of Certain Abdominal Pains, in Their Relation to Atypical Types of Appendicitis. L. J. Hammond, Philadelphia.
76 *Physical Defects of School Children, Causing Subnormal and Mentally Deficient Pupils. S. W. Newmayer, Philadelphia.
77 Intracranial Involvement in Acute Middle-Ear Suppuration. B. H. Potts, Philadelphia.
78 *Thyroid Extract in Epilepsy and Migraine, apropos of Ten Cases. A. Gordon, Philadelphia.
79 Treatment of Ptosis. W. C. Meanor, Beaver.
80 Importance and Value of Physical Therapeutics. M. L. Barshinger, York.
81 *Penetrating Wounds of the Thoracic and Abdominal Cavities. W. Lathrop, Hazleton.
82 New Mechanical Devices in Treatment of Laryngeal Diphtheria: A New Laryngeal Forceps, A New Laryngeal Probang. E. Rosenthal, Philadelphia.
83 *Analysis of Gastric Contents After Gastroenterostomy. C. R. Jones, Pittsburg.
84 The Misfortunes of Scientific Medicine. J. C. O'Day, Oil City.

73. **Exploratory Laparotomy in Gastric Diseases.**—In the oration on surgery Rodman said that the early recognition of cancer is generally impossible without exploration, and may be so even with it unless the growth is removed. He has seen but one instance of an ulcer in any other part of the stomach than the pylorus which has undergone malignant transformation. He explains its frequency at the pylorus by greater irritation and friction and the fact that the acid chyme is thrown against it in volume and force. In addition to his own case, all that he could find in the literature of an ulcer not at the pylorus which had undergone malignant degeneration was one case by Cackovic.

74 and 75. Abstracted in THE JOURNAL, Oct. 26, 1907, p. 1465.

76. Abstracted in THE JOURNAL, Nov. 16, 1907, p. 1715.

78. **Thyroid Extract in Epilepsy.**—Gordon reports ten cases in which thyroid extract was used with beneficial effect in epilepsy and migraine.

81. Abstracted in THE JOURNAL, Nov. 9, 1907, p. 1624.

83. Abstracted in THE JOURNAL, Nov. 2, 1907, p. 1549.

Northwestern Lancet, Minneapolis.

July 1.

85 *Sondern's Differential Leucocyte Resistance Line in Diagnosis and Prognosis of Acute Appendicitis. L. B. Wilson, Rochester, Minn.
86 "Charcot Joint." F. E. Leavitt, St. Paul.
87 *Mental Contagion. A. S. Hamilton, Minneapolis.
88 Indications for Craniotomy. H. W. Jones, Minneapolis.

July 15.

89 Treatment of Gastric Ulcer. J. W. Bell, Minneapolis.
90 Study of the Metabolism in a Case of Diabetes. W. D. Sheldon, Minneapolis.
91 *Surgical Necessities During Pregnancy and Labor. J. C. Litzenberg, Minneapolis.
92 *Surgical Necessities Following Labor. A. E. Benjamin, Minneapolis.

85. **Sondern's Differential Resistance Line.**—Wilson illustrates a modification of Gibson's standard chart for recording observations as to the leucocyte count and the estimate of polynuclear percentage as suggested by Sondern. He reports a series of observations, divided into two groups: A, those which come under observation on or before the third day, and, B, those which come under observation on or after the fourth day. These again are subdivided as follows: Class A into (1) cases of acute catarrhal appendicitis; (2) cases of early purulent appendicitis without walled-off abscesses, and (3) cases of chronic appendicitis without pathologic evidence of the real or imagined acute exacerbation. Class B is divided into (1) cases in which a well-marked-off abscess exists; (2) cases in which there is an imperfectly walled-off abscess, and (3) cases in which there is a very small and disappearing abscess. While drawing no sweeping conclusions, Wilson thinks the following statements justifiable: 1. Sondern's hypothesis, that the polynuclear percentage is an index of infection, the total leucocytosis an index of body reaction, and their proportional relationship an index of resistance, seems to be supported. The more important exceptions to this are in moribund cases and perhaps in children. 2. As practically applied in early appendicitis cases the disproportional polynuclear increase, i. e., a rising resistance line, indicates a more or less severe infection, which is not being properly cared for by the body. The higher and longer this line, the more serious the case. 3. A proportional polynuclear percentage or a disproportionate polynuclear decrease, if well marked, indicates mild or well-cared-for infection. 4. The value to the surgeon in early cases is but little, since in most early cases the patients are operated on anyway. It may be of some value negatively in indicating that the supposedly acute exacerbations of chronic appendicitis are not present. 5. In cases between the fourth and fourteenth days, the resistance line is of great value to the surgeon in indicating the patient's poor resistance and the necessity for immediate operation. The operative findings in these cases bear out the leucocyte determination with wonderful accuracy. 6. In cases like those in A. 3, a horizontal or falling resistance line indicates that the patient is taking care of the infection. If the infection is severe, as shown by a high though falling line, the patient may perhaps best be given medical treatment rather than submitted to operation. 7. When such a case as is indicated in B. 1 is being kept under observation, the resistance line should be determined daily, and should the line begin to rise the patient may be submitted to operation.

87. **Mental Contagion.**—Hamilton refers to the mental epidemics that have occurred in all ages, and urges the advisability of segregating the insane, the idiots and the imbecile, not only for their own sakes, but because of the unhealthy mental influence, which is otherwise constantly exercised on friends and neighbors. He reports cases to show the morbid influence of the insane or the abnormal on other minds whose power of resistance has from some cause become lessened.

91. **Operations During Pregnancy.**—Litzenberg sums up his considerations on this subject as follows: When operative conditions arise that would, if postponed, be dangerous to the health or life of a woman, the fact that she is pregnant should not deter the surgeon from operating, because, in fact, there is really little danger of interrupting pregnancy except in women who are excessively nervous. So tolerant to injury is the pregnant woman that extensive lacerated wounds of the abdomen and accidents violent enough to fracture the fetal extremities have occurred and pregnancy has gone on uninterruptedly. The condition calling for operation is usually more likely to endanger the pregnancy than the operation itself. Unless the demand for an operation be very urgent, the time which corresponds to the menstrual period must be avoided; and, as women seem prone to lose their babies at the third, fourth and eighth months, these should not be selected for operating. With these exceptions, surgery on the pregnant woman may be undertaken with little fear of unusually grave consequences.

92. **Surgical Necessities Following Labor.**—Benjamin says that labor may result in one or more of the following conditions, which he discusses seriatim: 1, Rupture of the uterus; 2, lacerated cervix; 3, lacerated perineum; 4, uterine displacement: (a) retroflexion, (b) retroversion, (c) prolapse; 5, prolapse of adnexa and uterus; 6, cystocele; 7, rectocele; 8, fistula. Among diseases that may arise, or being latent may be lighted up into activity, by labor he names: 1, Appendicitis; 2, salpingitis; 3, peritonitis; 4, septicemia; 5, ovarian cysts; 6, carcinoma; 7, tuberculous peritonitis; 8, gall-bladder disease; 9, uterine fibroids. These also he considers in detail. He draws the following conclusions: 1. It is time that the profession should recognize the importance of carefully investigating all cases of pregnant women with possible associated pelvic or abdominal disease. 2. It is certain that many diseases, such as appendicitis, gall-bladder disease, ovarian cysts and certain uterine fibroids, are better operated on during the pregnant state than after the symptoms are exaggerated by the traumatism of childbirth. 3. Women who have borne children may have had an irregular convalescence, due to the presence of pelvic disease that has been directly caused or exaggerated by labor. 4. When certain complications are manifest after childbirth their early recognition and operation often offer the safest prognosis. 5. Nearly all lacerations of the cervix, vagina and perineum are best repaired directly following the birth of the child. 6. Such repair often saves

months and years of suffering (often many women will never have these repairs done later). 7. By immediate repair other complications are frequently avoided. 8. Nearly all late cases of laceration and uterine displacement, fistulæ, etc., should be corrected for the bodily and mental comfort of the patients.

Albany Medical Annals, Albany, N. Y.

June.

93 Glimpses of the Past. H. M. Hicks, Amsterdam, N. Y.
94 The "Herd" Theory as an Etiologic Factor in Ozena. C. F. Theisen, Albany.
95 Clinical Types of Alcoholic Insanity. N. A. Pashayan, Schenectady, N. Y.
96 The Guest; or Personal Experiences of a Patient in a Hospital for the Insane (continued). Told by Herself.

Ohio State Medical Journal, Columbus.

June.

97 Six Cases of Diffuse Suppurative Peritonitis Following Appendicitis with Perforation. J. U. Barnhill, Columbus.
98 Operations on Some Complicated Cases of Appendicitis and Some Cases Resembling Appendicitis. H. T. Sutton, Zanesville, Ohio.
99 What Should a Physician in General Practice Know and Do in a Case of Appendicitis? S. B. McGavran, Cadiz.
100 Importance of Early Diagnosis of Acute Infections of the Middle Ear. J. M. Ingersoll, Cleveland.
101 Prophylaxis and Early Treatment of Acute Otitis Media. G. C. Jameson, Oberlin.
102 Treatment of Pain in the Ear without Operation. C. Lukens, Toledo.
103 Surgical Treatment of Earache from the Standpoint of a Specialist. W. Thrasher, Cincinnati.

Monthly Cyclopedia and Medical Bulletin, Philadelphia.

June.

104 Therapeutics of Cardiovascular Disease. F. P. Henry, Philadelphia.
105 The Essence of the Rest Cure. J. M. Taylor, Philadelphia.
106 The Bier Hyperemia Method—How to Enhance Its Curative Efficiency. C. E. deM. Sajous, Philadelphia.

Mississippi Medical Monthly, Vicksburg.

June.

107 Presentation of Gavel. W. H. Aikman, Natchez.
108 Infantile Scurvy or Scorbutus. P. Beckman, Natchez.
109 Neuritis. M. J. Alexander, Tunica.

Western Medical Review, Omaha.

June.

110 Nutritional Disorders in Infants. H. M. McClanahan, Omaha.
111 Therapeutic Value of Rest in Bed. W. F. Milroy, Omaha.
112 Chronic Ileus. L. Wiseman, Cheyenne, Wyo.

Indiana Medical Journal, Indianapolis.

June.

113 Pragmatism and Medicine. J. V. Reed, Indianapolis.
114 Principles and Practice in Treatment of Wounds. J. W. Sluss, Indianapolis.
115 Diagnosis of Pus in the Pleural Cavity. A. C. Kimberlin, Indianapolis.
116 Scleroderma. A. W. Brayton, Indianapolis.
117 Syphilis as Portrayed by Shakespeare. A. C. Getchell, Worcester, Mass.

Journal of Outdoor Life, Saranac Lake, N. Y.

June.

118 New Discoveries to be Made in Tuberculosis. R. Koch.
119 New York State Hospital for Crippled and Deformed Children. J. J. Nutt, New York.
120 Street Dust as a Factor in Spread of Disease. F. P. McCarthy, Oil City, Pa.

American Journal of Urology, New York.

June.

121 Hematuria. G. MacGowan, Los Angeles.
122 Spermatocele. Prof. von Posner, Berlin.
123 Typical Cases of Spermatorrhea. F. M. Johnson, Boston.
124 Dual Malignancy in the Penis. J. N. Vander Veer and C. W. L. Hacker, Albany.
125 Amputation of Penis in Case of Syphilis. M. L. Heidingsfeld, Cincinnati.

Journal of the New Mexico Medical Society, Albuquerque.

June 15.

126 Vaginal Hysterectomy. S. D. Swope, Deming, N. M.
127 Ophthalmia Neonatorum. W. G. Shadrach, Albuquerque.
128 Report of Special Health Officer. B. Ruppe, Tucumcari, N. M.
129 Vaginal Hysterectomy in a Pregnant Woman—Recovery. H. Crutcher, Roswell, N. M.
130 Sleeplessness. J. W. Colbert, Albuquerque.
131 Surgery of the Gall Bladder. D. H. Carns, Albuquerque.

Atlanta Journal-Record of Medicine.

June.

132 Medical Organization. M. A. Clark, Macon, Ga.
133 One Hundred and Twenty Knee-Joint Operations. M. Hoke and C. R. Andrews, Atlanta.
134 Tumors of the Bladder. A. L. Fowler, Atlanta.
135 "American Hookworm"—Uncinariasis. A. G. Fort, Lumpkin, Ga.
136 Prophylaxis and Treatment of Typhoid Fever. J. B. Woodville, Fayette, W. Va.

New York State Journal of Medicine.

June.

137 *Oxygen in Medicine and Surgery. W. S. Bainbridge, New York.
138 *Vascular Crises. H. L. Elsner, Syracuse, N. Y.
139 *Causes and Treatment of High Arterial Tension. L. F. Bishop, New York.
140 Modern Conceptions Regarding Chemical Regulation of Function. G. Lusk, New York.
141 *Technic of an Efficient Operative Procedure for the Removal and Cure of Superficial Malignant Growths. S. Sherwell, Brooklyn, N. Y.
142 Acute Diverticulitis. C. C. Zacharie, White Plains, N. Y.
143 Extracting Test-Meals. A. Bassler, New York.
144 *Intracranial Complications of Middle Ear Suppuration. S. J. Kopetsky, New York.

137, 138, 139, 141 and 144. Abstracted in THE JOURNAL, Feb. 29, 1908, pp. 721 and 722.

FOREIGN.

The Lancet, London.

July 18.

1 *Etiology of Pulmonary Tuberculosis. Sir W. Whitla.
2 *Inborn Errors of Metabolism. A. E. Garrod.
3 *Opsonic Index in Pulmonary Tuberculosis. D. L. Smith, J. A. D. Radcliffe, D. Elder and A. Crossley.
4 *Blood Pressure in Neurasthenic States and Effects of Treatment. E. D. Macnamara.
5 Osteomalacia. W. O. Meek.
6 *Diphtheritic Paralysis Treated by the Serum of Roux. G. S. Middleton.

1. Published in the British Medical Journal, July 11, 1908, and commented on editorially in THE JOURNAL, August 1, page 410. Abstracted in THE JOURNAL, August 8, p. 535.

2. **Inborn Errors of Metabolism.**—In the third Croonian lecture Garrod takes up in detail the subject of cystinuria. He goes deeply into its chemistry. He next considers the derangement of sulphur metabolism in cystinuria, in virtue of which the subjects of the anomaly excrete some part of their cystin as such in the urine, often to their serious disadvantage. He is convinced that cystinuria is less rare than alkaptonuria. The liability to the formation of calculi composed of cystin and to other urinary disorders, such as cystitis, gives to cystinuria a practical as well as a theoretical importance. He describes the cystinuric urine and the method of obtaining cystin crystals. The cessation of deposits must not be taken as evidence that a patient has ceased to excrete cystin, for the addition of acetic acid may cause their deposition. In the feces of cystinuries no cystin can be found. The error of metabolism underlying cystinuria is more complex and less uniform than that underlying alkaptonuria. The cases hitherto investigated admit of classification on the following lines: 1. In some no diamines and no primary protein fractions other than cystin have been found in the urine. 2. In some the urine has contained cadaverin or putrescin or both, in addition to cystin, but the excretion of diamines is apt to occur in an intermittent manner. 3. In a very few cases leucin or tyrosin, or both, have been excreted, with or without diamines. 4. In a single case, that of Loewy and Neuberg, cystin was present in the urine, but no diamine, leucin or tyrosin. When diamino-acids were given by the mouth the patient excreted the corresponding diamines, and when tyrosin and aspartic acid were given these were excreted unchanged. In other cases in which similar feeding experiments have been tried no such results have followed the swallowing of diamino- or monamino-acids, and this patient was also exceptional in his method of dealing with cystin introduced by the mouth.

Garrod discusses the various methods for estimating cystin in urine. He gives tables showing (1) the uniformity of many of the figures in the daily excretion of cystin in 19 cases of cystinuria; (2) a constant variation of the C:N ratio in the output in cystinuria. Cystin administered to cystinurics is burned by them to sulphate, as is the case when given to a normal man. This lends support to the view that the cystin excreted unchanged by patients has its origin in the breaking down of the tissue proteins and not of those of

the food. Only a certain path of sulphur metabolism is interfered with in cystinuria. Cystin excretion is only one of the manifestations of the metabolic anomaly known as cystinuria. Other protein fractions than cystin may also be implicated in the error, with the result that cadaverin and putrescin, leucin and tyrosin may be excreted side by side with cystin.

3. **Opsonic Index in Pulmonary Tuberculosis.**—Smith, Radcliffe, Elder and Crossley report the results of researches, undertaken at the Crossley sanatorium, which afforded unusual opportunities of observing pulmonary tuberculosis in various degrees. The technic adopted was that of Wright and Douglas. Two or three normal persons were used as controls. From their charts the authors learn that in some cases there is a very appreciable variation in the opsonic power from hour to hour, although the patients were resting, and they conclude that one can not determine on the result of one estimation of the index whether an injection of tuberculin should be given or not. They classify different types of patients according to their suitability for inoculation. (a) Those showing extreme and rapid oscillations in opsonic power.—In cases of this type it was thought that, as even at rest the autoinoculations were so marked, the results of tuberculin treatment would probably be unfavorable. (b) Those with persistently high level indices.—Injections were not given here, as it was considered that it would not be possible to improve the patient's opsonic power and the risk of inducing a negative phase would have been incurred. (c) Those with low indices.—Injections were instituted in these cases and apparently with excellent results. Other investigations, carried out by the authors for the purpose of finding out whether there is any regular parallelism between the agglutinins and the opsonins in cases of phthisis, show that the two follow a similar course, and that the opsonic estimations are more delicate and record much slighter variations.

4. **Blood Pressure in Neurasthenia.**—Macnamara's observations lead him to the following conclusions: 1. In many cases of neurasthenia there is an alteration of the level of the blood pressure from the normal, the level being sometimes higher and sometimes lower than normal. 2. Patients who show such alterations and who undergo certain sorts of treatment manifest, in some cases, at the end of a course of treatment a level of pressure different from that which existed before treatment began. If the pressure at the commencement is abnormally high it will probably descend, while if it is abnormally low it will probably ascend. 3. The number of patients whose blood pressure is different at the end of their course of treatment from that which it was before treatment began is greater among those without a family history of nervous instability than among those with such a history. 4. In a very large majority of cases the application of high frequency currents produces a lowering of blood pressure, while the static bath (+ charge) and massage produce a raising of pressure. The discharging of a patient charged with static electricity results as often in a rise as in a fall of blood pressure. The application of the faradic current tends rather to lower than to raise the blood pressure, and the galvanic current can not be said to effect much change in either direction. 5. It is difficult to institute treatment with any confidence that there will be at the end of the course such an alteration as might perhaps be expected from a knowledge of the alteration that is likely to follow each application of the therapeutic agent employed, though we may look for a change of level, when the level was at the commencement abnormal, to one that is nearer the normal. There is no evidence that the differences of variation of level before and after treatment, which may sometimes be noted, can be correlated with improvement in health.

6. **Diphtheritic Paralysis.**—Middleton reports a severe case of diphtheritic paralysis of all four extremities in a man, 31 years old, which was progressing very unfavorably, when all other treatment was stopped and Roux's antidiphtheritic serum, obtained from Paris for the purpose, was injected. Beginning with 20 c.c. on January 16, between that date and the 25th, 80 c.c. more were injected. Increase in power was noted on January 17. By January 21 the patient could pick up small objects and turn in bed without assistance, on January 29 he could feed himself and stand alone, and he was discharged, well, by March 6. While this disease tends to spontaneous recovery, the coincidence of improvement with the first injection and its rapid and unchecked progress to cure cause Middleton to hope that the promise held out by a few previously reported cases will be fulfilled. Roux's serum was used, because that was used in the previously reported cases, but in his next case Middleton will try the antidiphtheritic serum in common use.

British Medical Journal, London.

July 18.

7 Bier's Induced Hyperemia. H. F. Waterhouse.
8 Nasal Obstruction. W. G. Spencer.
9 Treatment of Otitic Cerebellar Abscess. D. R. Paterson.
10 Complications of Chronic Otorrhea. H. H. B. Cunningham.
11 *Iritis, with Special Reference to Gonorrheal Iritis. W. M. Beaumont.
12. *Little-Known Type of Amblyopia in Children. S. Stephenson.
13 Medical Inspection of Schools. W. L. Edwards.
14 *Action of Arsenic on Red Blood Corpuscles, and a Theory of Blood Defect in Pernicious Anemia. J. A. Gunn.

11. **Gonorrheal Iritis.**—Beaumont describes a syndrome—gonorrhea, arthritis, iritis. His own experience leads him to conclude that gonorrheal iritis is much more common than is generally admitted. Rheumatoid arthritis is less common. Gouty iritis he is altogether skeptical about.

12. **Amblyopia in Children.**—In cases of "incomplete postpapillic atrophy of the optic disc," which in Stephenson's observation are invariably bilateral, inquiry into the patient's personal history often elicits the fact that, when an infant, there had been a "cerebral" or "meningitic" illness, marked by such symptoms as "fits," convulsions, headache, vomiting, constipation, retraction of the head, temporary paralysis, squint, unconsciousness, and so forth. On recovery from the attack, sight was found to be partially or totally lost, but has since been more or less regained. The conclusion is almost inevitable that an infantile meningitis or encephalitis was accompanied by optic papillitis, and that both the general and local condition had to some extent been recovered from. The incomplete optic atrophy seen later by the ophthalmic surgeon is on this view to be regarded as a sequel to a meningitic papillitis. Stephenson reports cases which show that an attack of meningitis (or encephalitis) may entail, as permanent evidence of its former existence, (1) incomplete optic atrophy, (2) nystagmus, and (3) paresis of one or more of the extrinsic muscles of the eyeball. These symptoms, it will also be seen, may occur as isolated or grouped phenomena. In the last case quoted by the author paresis of the extrinsic muscles was the only evidence of a former meningitis.

14. **Red Blood Corpuscles.**—Gunn has performed a series of experiments to explain the hematinic value of arsenic, viz., its action on the formed red blood corpuscles, with the result that arsenic has been found to exert on them *in vitro* a pronounced protective influence against the hemolytic action of one of the most commonly used hemolytic agents, distilled water. He describes three experiments and says that, from the fact that the addition of distilled water produced considerably less hemolysis in those corpuscles which had been subjected to arsenic than in those which had gone through the same processes minus arsenic, three conclusions may be drawn: 1. That arsenous acid is fixed to the red blood corpuscles. 2. That this process takes place very rapidly. 3. That it protects these corpuscles against the hemolytic action of distilled water. He says that the individual high hemoglobin content of red cells in pernicious anemia, coupled with the observation that iron is present in the liver and other organs and that it is useless as a remedy, seems to indicate that the defect does not lie in the hemoglobin. He suggests that the stroma of the red blood corpuscles consists largely of lecithin and cholesterin. The condition known as pernicious anemia may be due to a deficiency in the body of lecithin or cholesterin and the administration of these substances may be of some use as a remedy. Certain facts go to show that

there may be some defect in the stroma of the red cells in this disease. For example, they do not run into rouleaux in normal fashion. On such a hypothesis of the blood defect in pernicious anemia, the results of its somewhat empirical treatment may possibly be explained.

Clinical Journal, London.

July 15.

15 Carcinoma of the Ascending Colon. L. A. Bidwell.
16 Modern Methods of Infant Feeding. F. Langmead.

Medical Press and Circular, London.

July 15.

17 Clinical Forms of Tuberculous Hemoptysis. F. Bezançon and S. I. de Jong.
18 *Acute Disseminated Sclerosis. W. Murrell.
19 Inheritance of Insanity and Tuberculosis. W. R. MacDermott.
20 The Austrian Tyrol as a Health Resort. D. Walsh.

18. **Disseminated Sclerosis.**—Murrell reports a remarkable case of a girl, aged 19, who, after a week's sickness, with vomiting and pains in the abdomen and inability to walk, came to hospital on January 8. She was bright and cheerful looking and did not appear to be ill. He describes the symptoms, which led to a diagnosis of hysteria. She remained in the same condition until January 30, when the appearance of incontinence of urine and feces aroused the suspicion that the cause was some commencing organic lesion. By February 4 the case was regarded as an early one of disseminated sclerosis, on the basis of the following summary of symptoms: 1. Patient in bed, fairly cheerful, but disinclined to speak. 2. Inability to stand, although both legs are moved freely in bed. 3. Reflexes exaggerated, no tremor, and apparently no anesthesia. 4. Dilatation of left pupil, with left ptosis and flattening of the left side of face. 5. Incontinence of urine and feces. 6. Occasional purposeless vomiting; apparently no headache. Alternative possibilities were entertained, in succession, of a cerebral tumor in the silent area or tuberculous meningitis. The patient died February 10 and an autopsy showed nothing to account for death. A more minute examination of the hardened brain, however, showed numerous areas of degeneration throughout, their shape, size and distribution being very irregular. There was no shrinking or bulging of the cord at the sites of the degenerative areas. The diagnosis of disseminated sclerosis was thus finally established. The whole period of illness, reckoning from the onset of the first symptom to death, was forty days. This is probably the most acute case on record.

Journal of Tropical Medicine and Hygiene, London.

July 1.

21 *Tertiary Yaws. R. Howard.
22 *Situation of Splenic Rupture in Enlarged Spleens. J. Cantlie.
23 *Antityphoid Inoculation. R. H. Fox.

21. **Tertiary Yaws.**—Howard, writing from British Central Africa, describes the symptoms of tertiary yaws, which he holds to be a true disease and not a form of syphilis. Syphilis is very rare in the country he writes from, while tertiary yaws is very common. In two instances, moreover, of boys of about 13, who were certainly free from syphilis, and who had undoubtedly true yaws, this tertiary form appeared. Howard describes the skin lesions, bone and joint disease, and destructive ulceration of the nose, palate and pharynx.

22. **Situation of Splenic Rupture.**—Cantlie gives drawings to demonstrate that rupture of the inner surface of the spleen may be occasioned by a blow on the surface of the body, without any evidence of bruising on the outside surface of the spleen—an important medicolegal point, since so many ruptures of the spleen follow on a blow or kick over its region.

23. **Typhoid Preventive Inoculation.**—Fox discusses this subject, including the theory and method of the inoculation, very thoroughly, and urges missionaries and others working in tropical countries to have themselves inoculated. He considers that its utility is proved, and recommends that the vaccine be obtained from laboratories under the control of the discoverer. The duration of the immunity is probably not less than two years.

The Journal of Hygiene, London.

May.

24 *Insects in the Epidemiology of Plague. D. T. Verjbitski.
25 Are Domestic Animals of India Affected by Plague? W. B. Bannerman and R. J. Kâpadiâ.
26 *Septicemia in Human Plague: Experiments on the Infectivity of the Excreta.
27 Bionomics of Fleas.
28 *How the Flea Clears Itself of Plague Bacilli.
29 The Seasonal Prevalence of Plague in India.
30 Differential Diagnosis of Plague Bacillus.

24. **Insects in the Epidemiology of Plague.**—Verjbitski presented this paper as a thesis for the degree of M.D. at St. Petersburg in 1904, but, as it was in Russian and was not published in any of the well-known journals, it escaped notice. The Indian Plague Commission, however, found that the author's experiments were so well conceived and executed and his results so important in regard to the spread of plague, and covering so much of the ground subsequently traversed by the commission—though the particular species of fleas worked with in the two instances were not identical—that they present it as one of the reports of the commission. The rat flea in St. Petersburg is not the *Pulex cheopis*, but the *Typhlopsylla*, which is found not to bite man. Among his results he notes:

1. All fleas and bugs which have sucked the blood of animals dying from plague contain plague microbes. 2. Fleas and bugs which have sucked the blood of animals which are suffering from plague, only contain plague microbes when the bites have been inflicted from twelve to twenty-six hours before the death of the animals, that is, during that period of their illness when their blood contains plague bacilli. 3. The vitality and virulence of the plague microbes are preserved in these insects. 4. Plague bacilli may be found in fleas from four to six days after they have sucked the blood of an animal dying with plague. In bugs, not previously starved or starved only for a short time (one to seven days), the plague microbes disappear on the third day; in those that have been starved for four to four and a half months, after eight or nine days. 5. The number of plague microbes in the infected fleas and bugs increase during the first few days. 6. The feces of infected fleas and bugs contain virulent plague microbes as long as they persist in the alimentary canal of these insects. 7. Animals could not be infected by the bites of fleas and bugs which had been infected by animals whose own infection had been occasioned by a culture of small virulence, notwithstanding the fact that the insects may be found to contain abundant plague microbes. 8. Fleas and bugs which have been fed on animals which have been infected by cultures of high virulence, convey infection by means of bites, and the more certainly so the more virulent the culture with which the first animal was inoculated. 9. The local inflammatory reaction in animals which have died from plague occasioned by the bites of infected insects is either very slight or absent. In the latter case it is only by the situation of the primary bubo that one can approximately identify the area through which the plague infection entered the organism. 10. Infected fleas communicate the disease to healthy animals for three days after infection. Infected bugs have the power of doing so for five days. 11. It was not found possible for more than two animals to be infected by the bites of the same bugs. 12. The crushing of infected bugs *in situ* during the process of biting, occasioned in the majority of cases the infection of the healthy animal with plague. 13. The injury to the skin occasioned by the bite of bugs or fleas offers a channel through which plague microbes can easily enter the body and occasion death from plague. 14. Crushed infected bugs and fleas and their feces, like other plague material, can infect through the small punctures of the skin caused by the bites of bugs and fleas, but only for a short time after the infliction of these bites. 15. In the case of linen and other fabrics soiled by crushing infected fleas and bugs on them, or by the feces of these insects, the plague microbes can, under favorable conditions, remain alive and virulent during more than five months. 16. Chemical disinfectants do not in the ordinary course of application kill plague microbes in infected fleas and bugs. 17. The rat flea, *Typhlopsylla musculi*, does not bite human beings. 18. Human fleas do bite rats. 19. Fleas found on dogs and cats bite both human beings and rats. 20. Human fleas and fleas found on cats and dogs can live on rats as casual parasites, and therefore can under certain conditions play a part in the transmission of plague from rats to human beings, and vice versa.

26. **Infectivity of Plague Excreta.**—The commission says that experiments devised with the object of testing the infectivity of the excreta from the point of view of the spread of the human epidemic support the conclusion that the excreta of plague patients are ineffective in this regard. These experiments show (a) that the feces are rarely infective, even when a septicemia is present; (b) that the urine—in some cases containing virulent plague bacilli—from patients acutely ill of the disease failed to infect guinea-pigs when rubbed into a scarified area of skin; (c) that guinea-pigs exposed to intimate and prolonged contact with linen soiled with the excreta of moribund patients remained free from infection.

28. **The Clearing of Fleas from Plague.**—The commission reports: Fleas that have fed on septicemic blood are capable of conveying infection to fresh animals on which they feed. This capability is associated with the presence of plague bacilli in the stomach, intestine and feces. If such infected fleas are kept in captivity, it is found that after a time they are no longer capable of conveying infection; at the same time on dissection no bacilli are found in them. The commission shows that: 1, A clearing process exists; 2, the clearing process is more active at 90 F. than at lower temperatures; 3, it is probably of a phagocytic nature.

Bristol Medico-Chirurgical Journal.

June.

31 *Is Opsonic Treatment Useful in Phthisis? J. M. H. Munro.
32 *Calmette's Ocular Reaction in Tuberculosis. J. M. Fortescue-Brickdale.
33 Treatment of Hemoptysis in Pulmonary Tuberculosis. N. Neild.
34 Early Diagnosis of Pulmonary Tuberculosis. C. Muthu.
35 Lachrymal Obstruction: Its Results, Dangers and Treatment. C. Goulden.

31. **Is Opsonic Treatment Useful in Phthisis?**—Munro says that this question, often asked by interested patients and their relatives, is still met by the majority of family doctors with an answer in the negative. While commending the cautious attitude, he hopes to incline them to an opposite verdict. "A strict *experimentum crucis* is hardly realizable in medicine, for when all material conditions have been arranged so that the only one to be varied at will is the therapeutic agent under test, one has still to reckon with uncontrollable changes in the patient, with psychic influences and the possibility of faith cures." He reports a series of cases, however, which lead him to the following comment: If tuberculin can show distinct evidence of specific action in serious, acute and long-standing cases of phthisis, like the few here cited, can not much more be expected of it in very early and slight cases? When the diagnosis is clearly established, it seems that it should be the very first means used after the patient has been placed under suitable conditions; and, as the essentials of rest, fresh air and good feeding can generally be obtained outside a sanatorium, he believes that tuberculin without a sanatorium can do more than a sanatorium without tuberculin. Finally, there are the very numerous cases of children and young people beginning to ail who ought to be in perfect health. The family doctor suspects a tuberculous tendency or "delicacy of chest," but no unimpeachable symptoms are discoverable. If, however, there is a group of suspicious little facts, explicable by incipient tuberculosis, though not diagnostic of it, and if a series of three or four opsonic indices (two of which may advantageously be taken before and after exercise, respectively) shows the fluctuations so often met with in actual infections, it will probably be found that a few inoculations will at once establish the diagnosis and cure the patient. Several cures of this kind have come under his own observation during the two years he has acted on the obvious indication.

32. **Ocular Tuberculin Reaction.**—Fortescue-Brickdale discusses the literature of the subject and tabulates it, adding the cases observed by himself and his colleagues at the Children's Hospital, the total number of individual cases reaching 4,448. The cases are arranged in three columns: those clinically tuberculous, those clinically non-tuberculous, and those clinically doubtful. Out of 1,623 cases in the first class, 1,419, or 87.4 per cent., gave a positive and 204, or 12.6 per cent., a negative result. In the second class there are 1,931 cases, of which 214, or 11.1 per cent., were positive and 1,717, or 88.9 per cent., negative. In the third class, out of 710 cases 275, or 38.7 per cent., were positive and 435, or 61.3 per cent., were negative. His conclusion is that "for practical clinicians the moral of Calmette's reaction is that there is no short cut to diagnosis, unless it be that made by the surgeon's knife when he opens the abdomen, for instance, and finds acute hemorrhagic pancreatitis."

Annales de Médecine et Chirurgie Infantiles, Paris.

July 1, XII, No. 13, pp. 433-468.

36 *Case of Malingering. E. Périer.
37 Arterial Pressure in Normal Children. (Tension artérielle normale chez l'enfant.) E. Gaujoux.
38 Erysipelas in the Newly Born. (Erysipèle chez le nouveau-né.) A. Herrgott.
39 *Standards for Growth in Length and Weight of the Newly Born. (Accroissement statural et pondéral chez le nouveau-né.) G. Variot.

36. **Case of Malingering.**—Périer uses Dieulafoy's new term "pathomimie"—from the Greek words for disease and for imitation—in referring to a case of malingering in which a girl of 14, of a wealthy family, baffled medical skill for a long time by searing herself at various points with a curling iron. The shape of one of the lesions finally gave the clue. Charcot was one of the authorities consulted.

39. **Standards for Growth in Length and Weight After Birth.**—Variot thinks that nothing can compare with the scales for determining the proper development of an infant, but records of its growth in length are also important, as he shows by a number of examples. The growth in length proceeds entirely independent of the growth in weight, and fluctuations from the normal standard of each may afford valuable information.

Archives Générales de Chirurgie, Paris.

June 25, II, No. 6, pp. 551-664.

40 Surgical Intervention in Irreducible and Old Dislocation of the Tarso-Metatarsal Joint. (Luxations irreductibles et anciennes de l'articulation de Lisfranc.) C. Lenormant.
41 *Pulmonary Embolism After Radical Treatment of Inguinal Hernia. Mauclaire.
42 Simultaneous Dislocation of Both Shoulder Joints. J. Anglada.

41. **Embolism of the Lungs After Radical Operation for Inguinal Hernia.**—Mauclaire reports a case of bilateral phlebitis of the spermatic vein and slight right pulmonary embolism after an operation for inguinal hernia on a man of 42. He summarizes 25 cases in the literature, with 25 others briefly mentioned, and 7 cases of femoral phlebitis. The mortality in the 25 cases of which the details are known was nearly 50 per cent. The embolism is usually tardy, of sudden onset and is generally accompanied by hemoptysis. Prophylaxis consists in avoidance of injury to the vessels in the epigastrium and of traction on the femoral vein and manipulation of the vessels in the spermatic cord. Injections of serum and copious drinking of water have been recommended to prevent this postoperative embolism, on the assumption that the patient is dehydrated. If phlebitis develops in the spermatic vessels the region must be immobilized, and he suggests that embolism might be prevented by applying a ligature high on the spermatic vein. He has had considerable experience with this intra-abdominal ligation of the spermatic vessels, and he no longer hesitates in very urgent cases to ligate the femoral or iliac vein in prevention of embolism. In regard to treatment of femoral thrombosis and pulmonary embolism, he merely calls attention to Trendelenburg's recent attempts to remove the obstructing clot after resection of the third rib and arteriotomy of the pulmonary artery. See abstract in THE JOURNAL, August 8, page 539.

Revue de Chirurgie, Paris.

July 10, XVIII, No. 7, pp. 1-211.

43 Mixed Tumors of Cheek and Lips. (Tumeurs mixtes de la joue et des lèvres.) C. Lenormant, H. R. Duval and E. Cottard.
44 *Pathogeny and Treatment of Intestinal Invagination. X. Delore and R. Leriche.
45 Hammer Toe. (Orteil en marteau.) Couteaud.
46 *Cold Retromammary Abscess. (Abscès froids thoraciques rétro-mammaires.) P. Hardouin and Marquis. Commenced in No. 6.
47 *Colectomy for Cancer of Large Intestine. P. Cavaillon and E. Perrin. Commenced in No. 6.

44. **Intestinal Invagination.**—Delore and Leriche epitomize seven cases of invagination from their experience, either essential invagination or that due to obstruction from a Meckel's diverticulum turned inside out and projecting into the lumen of the intestine, or to obstruction from a benign or malignant tumor in the small or large intestine. Reduction of the invagination by a laparotomy seldom succeeds, and resection of the entire invaginated segment has a very high mortality. The most practicable method of treatment is resection of the invaginated section after incision of the portion forming the outer cylinder sheath, followed by circular enterorrhaphy and

suture of the sheath. They give an illustrated description of this technic as they have successfully applied it in the clinic in several cases. If a cancer is responsible for the invagination, they advise making an artificial anus in the cecum with enterectomy later as indicated, closing the new anus still later. This technic gave good results in one case of cancer of the sigmoid flexure with invagination. The operation was done in three stages.

46. **Cold Retromammary Abscesses.**—Hardouin and Marquis analyze 41 cases of cold abscesses in the chest, including some from their own practice, and discuss the treatment which can be only by active surgery. Puncture and modifying injections should not be considered, as the primary lesion is retrocostal or pleural and practically inaccessible. Active measures have sometimes saved patients; the question whether to operate or not is merely the question of the patient's capacity for enduring the operation.

47. **Colectomy.**—Cavaillon and Perrin denounce palliative measures in case of cancer of the large intestine, saying that colectomy should be done unless the general condition or metastasis contraindicate any such measure. The mortality of colectomy for cancer in uncomplicated cases is only 18 per cent. Ileocolostomy can be done at one operation, but cancer on the left side, requiring colo-colo-anastomosis, is best treated by operating in three stages. This has reduced the mortality from 40 or 60 per cent. to 18 or 20 per cent., and the intervention is scarcely more serious than a palliative operation. It gives good results and is a radical method of treating cancer of the colon. They present an illustrated description of the three stages of the operation with details of a number of cases which emphasize the advantages of the technic advocated.

Archiv für Gynaekologie, Berlin.

LXXXV, No. 3, pp. 483-749. Last indexed July 4, p. 82.

48 *Operative Treatment of Puerperal Peritonitis and Thrombophlebitis. G. Leopold.
49 Melanoma of External Genitals. P. Meyer.
50 Wedge Resection of Body of Uterus on Account of Chronic Metritis. (Keilresection des Corpus Uteri.) A. Dührssen.
51 Two Cases of Congenital Sacral Tumor. E. Keller.
52 Atypical Pavement Epithelium in the Uterine Cervix. (Atypisches Plattenepithel an der Portio und an der Innenfläche der Cervix uteri.) W. Schauenstein.
53 *Importance of Suprarenal Preparations in Obstetrics. (Bedeutung des Suprarenins für die Geburtshülfe.) M. Neu.
54 Uterine Adenomyoma. O. Ernst.

48. **Operative Treatment of Puerperal Peritonitis and Thrombophlebitis.**—Leopold has now had an experience of 18 cases in which he applied operative treatment, with recovery of 13 of the women (mortality, 27 per cent.); external causes were responsible for the fatalities in nearly every instance. He reviews this material and tabulates it under various headings, emphasizing the importance of gonorrheal infection shortly before or during the pregnancy as fraught with greater danger for the confinement than is generally supposed. In such women high fever may develop with signs of beginning peritonitis as early as the third day after delivery or not until the sixth day. The tardy fever is especially characteristic of gonorrheal infection, and may soon lead to death from acute peritonitis or thrombophlebitis. Especially dangerous are the prolonged hemorrhages after abortion, particularly when associated with fever; after expulsion of the ovum acute peritonitis or thrombophlebitis may develop. The gravest signs of this are the high, small pulse, hiccough, vomiting and chills. Of subordinate importance are abdominal pain, meteorism and, with thrombophlebitis, pain at the obturator foramen and edema of the feet and legs. Acute puerperal peritonitis indicates, not later than the third day, opening into the abdominal cavity to evacuate the pus. In every case Douglas' cul-de-sac should be opened, irrigated and drained. It is also useful to drain the abdominal cavity in the flanks. If the peritoneum is not involved, puerperal purulent thrombophlebitis should be treated by ligation and excision of the thrombosed, pus-filled vein. The best method here is the transperitoneal. The proper moment for it has arrived when chills indicate that the thrombi are crumbling and are being swept along. In view of the fact that after a benign course of thrombosis of the femoral vein or the external iliacs on one or both sides, pyemic fever may develop later, he advocates early ligation of the iliac or the ovarian veins or even of all four. It should be recognized that the danger from the thrombophlebitis is far more threatening than that from the operation. Delay, however, reduces the resisting powers beyond redemption.

53. **Importance of Suprarenal Preparations in Obstetrics.**—Neu relates extensive experimental and clinical research on the influence of suprarenal preparations on the uterus. His findings confirmed the results of Kurdinowski's experiments with the isolated uterus kept alive with Locke's fluid and injected with a suprarenal preparation. The weakest concentration—1 or 5 to 20,000,000 parts—affects the uterus more energetically than ergot or other drugs regarded as specific uterine tonics. It is a powerful stimulant for the human uterus in all stages of its development and under all conditions. The uterus responds to injection of the suprarenal preparation into its muscle tissue with vigorous contraction and constriction of its vessels, this effect persisting for several minutes. The action of the preparation on the human uterus is thus dual: a purely muscular and a vasoconstrictor action, although either may predominate. The vascular phenomenon is generally most pronounced, but the muscular reaction persists longer. He found it possible to perform Cesarean section on animals after such an injection without loss of blood. Experiments with uteri just removed and clinical experiences confirmed the results on animals, showing that we have in the suprarenal preparations an extremely valuable means to combat atony and hemorrhage. The dose required for local application is too small to induce a general reaction of any consequence. The injection is best made, he thinks, through the abdominal wall into the muscular substance of the body of the uterus. Injection into the cervix or intrauterine instillation yields inconstant results. He has never observed any by-effects with this intramuscular injection of 0.0001 to 0.0003 gm. of the suprarenal preparations. Their principal field is to combat acute hemorrhage after expulsion and atony from inefficient labor. The old uterine tonics generally fail here on account of the delay in their action, while the suprarenal preparations act instantaneously. With this "percutaneous utero-muscular technic" the injection is made at a point on the median line about two fingerbreadths below the umbilicus, pushing the needle through the abdominal wall into the uterine muscle, with care not to push it too far. In cases of extreme relaxation of the uterine supports the uterus may have sunk down and back far enough to allow loops of intestine to fall between the abdominal wall and the body of the uterus. But this is very exceptional. As a rule, the uterus is in anteflexion and rests against the abdominal wall, while the empty bladder is down and out of the way. He warns repeatedly that the suprarenal preparations should never be injected into a vein nor allowed to get directly into a vein in any way.

Berliner klinische Wochenschrift.

July 6, XLV, No. 27, pp. 1257-1300.

55 Case of Congenital Elephantiasis. C. T. Noeggerath.
56 *Convergent Reaction in Reflex Immobility of Pupils. (Convergenzreaktion bei reflektorischer Pupillenstarre.) H. Lachmund.
57 *Case of Adams-Stokes' Disease with Induration in Bundle of His. J. Karcher and G. Schaffner.
58 Saponaceous Compounds as Complements. L. v. Liebermann and B. v. Fenyvessy.
59 Intranasal Opening into Maxillary Sinus. (Intranasale Eröffnung der Kieferhöhle.) Sturmann.
60 The Great Omentum. (Das grosse Netz.) B. Przewalski.
61 Contrast Staining of Bacteria and Leucocytes in Research on Phagocytosis. (Bakteriotropismus und Opsonisation.) A. Pappenheim.
62 Appendicitis in Pregnancy and the Puerperium. E. Runge.

July 13, No. 28, pp. 1301-1344.

63 *Brain Surgery. (Zur Gehirnchirurgie.) H. Oppenheim.
64 Hemolysin in Human Pancreatic Juice. (Im menschlichen Pankreassaft enthaltener Hämolysin.) J. Wohlgemuth.
65 Nodose Periarteritis. (Meso-Periarteritis.) C. Hart.
66 *Infusion of Salt and Sugar Solutions in Infants. (Kochsalz- und Zuckerinfusionen beim Säugling.) W. Weiland.
67 Complement-binding Tuberculosis Antibodies and Their Connection with the Tuberculin Reaction. S. Cohn.
68 Transillumination of Maxillary and Frontal Sinuses. (Methodik der Durchleuchtung von Oberkiefer- und Stirnhöhlen.) K. Vohsen.

69 *Acute Peritonitis. (Beurtellung und Behandlung der acuten Peritonitis.) Federmann.
70 *Latest Epidemics of Diphtheria, and Serum Treatment. A. Baginsky. Commenced in No. 27.

56. **Convergent Reaction with Reflex Immobility of Pupil.**—A housemaid developed a functional psychosis at 26; when examined by Lachmund two years later he noticed that the right pupil reflex was abolished. Both pupils contracted nearly alike in convergence and accommodation, but the right pupil did not react to light. This may be a congenital anomaly or the only expression of some encroaching organic affection. Lachmund has examined the pupil reflex in 27 cases of progressive paralysis and found it abolished in 20, with traces of a reaction in 2, normal reaction in 2, and unequal reaction in the two eyes in 4. In 2 cases the pupils contracted into an oval shape during convergence, the longest diameter upright when looking upward and horizontal when looking sideways, gradually becoming round. Both of these patients were taboparalytics.

57. **Adams-Stokes' Disease with Induration in Bundle of His.**—Karcher and Schaffner describe the autopsy findings in a case of Adams-Stokes' disease. The bundle of His was found to consist of connective tissue through half and more of its substance. The symptoms during life were tachysystole of the auricles with bradysystole of the ventricles. With a radial and carotid pulse rate of 33, the jugular pulse was three or four times as rapid. Twelve cases are cited from the literature in which the Adams-Stokes' disease during life was associated with induration of the bundle of His. In five there was interstitial cicatricial tissue at the apex besides that in the bundle of His; in another case the *Schwielen* were in the pericardium, and in the others the bundle was the site of syphilitic changes. In contrast to these positive cases, they mention others in which the bundle of His seemed to be normal with the Adams-Stokes' syndrome, and others in which there were no Adams-Stokes' symptoms, although the bundle of His was degenerated. They remark, in conclusion, that all these contradictory findings do not shake, in their opinion, the causal relationship between the pathologic changes in the bundle of His and the Adams-Stokes' syndrome.

63. **Diagnosis for Brain Surgery.**—Oppenheim has localized brain tumors and Krause has successfully removed them in a number of cases, their joint work having been previously mentioned in these columns. A difference of opinion has now arisen between them, Krause thinking that exploratory puncture of the brain by Neisser's technic is useless and a waste of time, while the by-effects sometimes obscure the diagnosis. Oppenheim, on the other hand, advocates it as occasionally of decisive diagnostic value. He relates his reasons for this view and cites a number of cases to show the difficulty of correct localization of a tumor when the secondary symptoms predominate. In several such cases autopsy revealed a tumor at an unsuspected point which could easily have been removed if discovered in time. The different phases of the symptoms are instructive, as they succeed each other, but it is too much to expect correct localization of the tumor from observations made during merely one of these phases. A diagnosis made "while you wait" is liable to be misleading. Enthusiasts, he reiterates, should be constantly warned of the limitations to correct localization of brain tumors. The general practitioner must also be repeatedly warned that the occasional brilliant successes are the exceptions, while in a large proportion of cases operative intervention fails on account of the uncertainty of the diagnosis or of the unfavorable character of the tumor or its multiplicity or complications, to say nothing of the gravity of the operation. It must be further impressed on the practitioner that the prospects for success are poorer with the duration of the affection, and that the patient can never be referred to the clinic for observation too early, and that the diagnosis should not be hurried. Trephining to relieve compression is very unsatisfactory, seldom giving more than transient relief and benefits vision but rarely.

66. **Saline and Sugar Infusions in Infants.**—Weiland states that injection of from 1 to 20 c.c. (16 m. to 5½ drams) of isotonic solutions of salt, cane or milk sugar in 50 infants induced no rise of temperature in any instance. The temperature was never modified, either, when as much as 150 c.c. (5 oz.) were given in a rectal enema. These findings contradict those of Schaps, who has reported actual fever after such infusions.

69. **Acute Peritonitis.**—In the course of this report on the experiences with acute peritonitis at the Moabit Hospital at Berlin, Federmann states that diffuse gonorrheal peritonitis is liable to heal spontaneously, as he has observed many times. It consequently does not require an early operation like peritonitis of other origin. Differentiation is often difficult, as the onset is stormy and the symptoms are grave. Exploratory puncture through the posterior vaginal vault will reveal the presence of gonococci in a rapidly made, dry preparation. In his experience the patients with acute peritonitis and a leucocytosis of 20,000 and over, operated on in the intermediate stage, all recovered. Leucocytosis of 15,000 or under by the third day, he says, contraindicates operative treatment for the time being, as the resisting powers are exhausted. He has never witnessed recovery in any case of suppurative peritonitis with low leucocytosis after the expiration of the early phase. In these cases the indications are to raise the resisting power, and the best results in this line are obtained by rectal saline infusion, a drop at a time, until several quarts are thus infused during the day. The general practitioner sees the sick man first, and in his hand lies the fate of the patient, as the prompt recognition of acute peritonitis is the main factor in its cure.

70. **Recent Epidemics of Diphtheria.**—Baginsky has been studying the 63 fatal cases of diphtheria at the Children's Hospital at Berlin in the last few years. In a few cases the disease seemed to be refractory to antitoxin. The recent epidemics confirm anew the benefits of serum treatment on the whole.

Deutsche medizinische Wochenschrift, Berlin.

July 9, XXXIV, No. 28, pp. 1217-1256.

71 *Angiosclerotic Gangrene and its Treatment by Arteriovenous Intubation. Wieting.
72 Cutaneous Tuberculin Reaction with Tubercle Bacilli Substance Precipitated with Iron. (Kutanreaktionen mit Eisenfällungsprodukten von Tuberkelbazillensubstanzen.) F. Ditthorn and W. Schultz.
73 *Simple Technic for Cultivating Meningococci. (Züchtung der Meningococcen.) H. Conradi.
74 *Determination and Functional Value of Hemoglobin. (Hämoglobinbestimmung.) H. P. T. Oerum.
75 Results of Operative Treatment of Tuberculosis of Ankle. (Fussgelenkstuberkulose.) R. Stich.
76 Treatment of Genu Valgum. G. Muskat.
77 Spontaneous Rupture of Uterus at Commencement of Delivery. H. Gans.
78 Fetal Ophthalmia. (Fötale Augenentzündungen.) R. Seefelder.

71. **Arteriovenous Intubation for Gangrene.**—Wieting reports from Constantinople what he thinks is the first completely successful case of clinical transplantation of blood vessels. The patient was a man of 40 with angiosclerosis of the legs, and the right leg had been amputated two years before on this account. Two months after the symptoms of impending gangrene had developed in the left leg Wieting implanted the femoral artery in the femoral vein, just below the mouth of the saphenous vein. He describes the simple technic and says that the foot became warm and pink at once after the operation. It was done under spinal anesthesia, and the patient has been free from symptoms and subjective disturbances since the operation, done last January.

73. **Cultivation of Meningococci.**—Conradi recommends the fluid derived by lumbar puncture as a favorable culture medium for meningococci. This is particularly convenient in cases of meningitis in which lumbar puncture is done as a therapeutic measure.

74. **The Functional Value of Hemoglobin.**—Oerum discusses the functional value of the blood, saying that the tint and the oxygen-binding property of the blood are elements which are independent of the hematin content (iron content). The blood of the Swiss averages only four-fifths the amount of hematin in the blood of the Danes, but it can bind fully as much oxygen as the latter. Its functional value is thus 1.25

in comparison with Danish blood. His measurements were made on thirty young Danish soldiers and 40 Swiss soldiers, and he cites figures which show that each 1,500 feet elevation brings an average increase of 800,000 red corpuscles. The contradictory findings in respect to the hemoglobin, with various technics, are explained.

Deutsche Zeitschrift für Chirurgie, Leipsic.

June, XCIII, Nos. 4-5, pp. 325-504.

79 *Improved Technic for Prostatectomy. (Neue Methode der Prostatektomie.) Wilms.
80 Historical and Critical Study of Chondromata, Osteitis, Bone Cysts and Similar Affections. (Knochencysten, Chondrome, fibröse Ostitis und ähnliche Leiden.) R. Milner.
81 Ileus from Constriction of Intestine by Tube. (Seltene Form innerer Incarceration.) T. Voeckler.
82 New Apparatus for Fractured Arm. E. Martini.
83 Experimental Tetany After Parathyroidectomy: Enhanced Susceptibility of Offspring. (Tetanie jugendlicher Ratten nach Parathyroidektomie.) H. Iselin.
84 *Treatment of Acute Inflammatory Affections with Artificial Hyperemia: 505 Cases. Blecher.
85 *Surgery of the Pancreas. (Pankreaschirurgie.) A. Dreifuss.
86 Attempt to Explain Action of Bier's Hyperemia. (Erklärung der Wirkungsweise der Bierschen Stauung im Granulationsgewebe fistulöser fungöser Herde.) E. v. Felegyhazi.
87 Symmetrical Lymphangioma of Salivary Glands. (Lymphangiome der Mundspeicheldrüsen.) E. Hagenbach.
88 Arrest of growth in Rats by Parathyroidectomy. (Zur Kenntnis der Epithelkörperchen-Funktion.) H. Iselin.

79. **Improved Prostatectomy.**—Wilms gives an illustrated description of his technic for perineal removal of the prostate with the least danger to the rectum. The prostate protrudes below the lower arch of the symphysis, and its side lobes are thus readily accessible through the perineum. He makes the incision along the ascending ramus of the pubic bone for 4 or 5 cm. The tissues here can be pushed back each side, giving direct access to the lateral lobe. In his three cases the incision was scarcely 1.5 cm. deep.

84. **Artificially Induced Hyperemia in Acute Inflammatory Infections.**—Blecher declares that the course of treatment was shorter and the functional results better under Bier's hyperemia in 505 cases than in the controls. In 66 cases of recent trauma he applied the constricting band as a prophylactic measure after a crushing or other injury of the head, face or limbs and 57 healed by primary intention. He thinks that this prophylactic hyperemia by this technic has a promising future, especially in military surgery.

85. **Surgery of the Pancreas.**—Dreifuss reports successful operation in three cases. In the first the pancreas had been injured by a contusion. Acute hemorrhagic pancreatitis required laparotomy twice in one case, and retroperitoneal evacuation of an abscess cured the other patient, a woman of 48, with acute necrosis of the pancreas. The other patients were young men.

Jahrbuch für Kinderheilkunde, Berlin.

June 15, LXVII, No. 6, pp. 641-766.

89 Scarlet Fever at Zurich, 1902-1906. N. Tiktin-Hausmann.
90 *Congenital and Early Acquired Rachitis. E. Wieland.

90. **Rachitis.**—From clinical and anatomic study of 130 cases of congenital or early acquired rachitis Wieland declares that there are no clinical signs of rachitis in the new-born. Congenital softness of the skull at the vertex is found in at least 20 per cent. of all children at term, but he affirms that this has nothing whatever to do with rachitis and that it speedily vanishes without ill results. After the onset of rachitis, a secondary softening of the skull is observed, either before or after the complete consolidation of the vertex softness. This secondary softening of the skull begins invariably in the posterior and lowest parts of the skull. This craniotabes may retrogress, but other signs of rachitis are always evident. Early acquired rachitis may cause the still unconsolidated primary softness of the skull at the vertex to spread over a larger area. These peculiar and hitherto misunderstood cases are distinguished by the disproportion between the apparent severity of the skull affection (rubber skull) and the rapidity with which it subsides—in consequence of the spontaneous and regular retrogression of the non-rachitic defects. Treatment with phosphorus hastens the cure of these apparently severe cases of rachitis.

Medizinische Klinik, Berlin.

July 5, IV No. 27, pp. 1011-1052.

91 *Diagnosis of Abscesses in Brain. (Diagnose des Hirn abszesses.) M. Lewandowsky.
92 Strictures in Rectum. C. Goebel.
93 Polycythemia with and without Enlargement of Spleen. (Polyzythämie mit und ohne Milztumor.) K. Winter.
94 *Kefir in Infant Feeding. (Kefirmilch als Säuglingsnahrung.) K. Dresler.
95 *Transmission of Infection from Puerpera to Child. (Infektion von Mutter auf Kind im Wochenbett.) K. Mayer.
96 Diagnosis of Typhoid in General Practice. O. Schellong.
97 Therapeutic Application of Radioactive Substances from Mineral Waters. K. Aschoff.
98 Actions of Normal Sera on Organism. (Wirkungen normaler Sera auf dem Organismus.) G. Salus.

July 12, No. 28, pp. 1053-1092.

99 *Nerve strain as an Etiologic Factor in Nervous Affections. (Die Rolle des Aufbrauches bei den Nervenkrankheiten.) L. Edinger.
100 Progress in Treatment of Appendicitis and Peritonitis. O. Klauber.
101 *Metreurynter for Placenta Prævia. (Hystereuryse bei Placenta Praevia.) W. Hannes.
102 Therapeutic Applications of Radium Emanations. A. Strasser and A. Selka.
103 *Experiences with Treatment of Lupus. P. Wichmann.
104 Nervous Heart Affections from Balneologic Standpoint. (Die lebenswichtigen nervösen Herzkrankheiten.) J. Jacob.

91. **Diagnosis of Abscess in Brain.**—Lewandowsky relates the details of a number of typical cases of abscess in the brain. In one case astereognosis—loss of power to recognize the shape of objects by touch—was at first the only symptom pointing to a focus in the parietal lobe, and the abscess was found here. In another case the first symptom noticed was a sudden stroke of apoplexy, followed by paralysis of the right arm, slight stiffness of the neck and deep stupor. An abscess was diagnosed from the stupor and signs of meningitis and the absence of choked disc and of signs of pressure on the brain. A case of chronic bronchitis was erroneously diagnosed as a tuberculous affection, and the onset of signs of apparent meningitis was assumed to be the development of a tuberculous process. Autopsy revealed an abscess in the right hemisphere, with no signs of tuberculosis. In another case an abscess ran an absolutely latent course with sudden death from a metastatic process. In marantic sinus thrombosis and hemiepileptic conditions in senile atrophy of the brain, the stupor is not so deep as with an abscess, and the signs of irritation are more diffuse. He refers also to the singleness of metastatic abscess in the brain and the absence, in many cases, of focal symptoms. A boy of 10, three months after an injury to the brow, had headache and vomited, but there was no local tenderness nor fever or focal symptoms. An abscess was found at the site of the trauma. Lack of abnormally high pressure in the cerebrospinal fluid speaks against meningitis and against tumor. Lymphocytosis is not observed with a tumor, but it does not differentiate meningitis from an abscess. It can only be said that the majority of abscesses are not accompanied by lymphocytosis, while it is the rule in meningitis. Lymphocytosis with suspicion of abscess warns of impending perforation. Fever speaks for meningitis.

94. **Kefir in Infant Feeding.**—Dresler declares that kefir milk is the best of all acid preparations of milk and is an excellent food for healthy and sick infants. He recommends it as an inexpensive food for infants, and believes that it is destined to play an important part in the reduction of infant mortality. He describes how to prepare it, and relates his experience in a number of clinical cases, maintaining that it has saved many a child in his practice among the poor. Its chief advantage is that it is not affected by heat and remains unmodified by hot weather. He keeps a supply of the "mother" kefir on hand, and gives it to the mothers to prepare the milk themselves. Kefir in tablet form does not act so well. The milk is boiled first. It has all the advantages of buttermilk with none of its disadvantages, he says.

95. **Transmission of Infection from Puerpera to Child.**—In one of the cases described the child died in the second week of streptococcus peritonitis, after eight days of health. The mother succumbed a few days later to sepsis from purulent phlebitis. The streptococci in each were apparently the same, and it is probable that the child became infected in dressing

the cord. In another case an abscess in the nursing child contained the *Staphylococcus pyogenes albus*, which could also be cultivated from an infiltration in the mother's breast. The child had not been allowed to nurse during the acute mammitis, but evidently there were still virulent germs left in the gland after the lesion had healed.

99. **Nervous Affections from Nerve-Strain.**—Edinger's previous communications on this subject of nervous affections from nerve-strain have been summarized in these columns. He is convinced that overfunctioning of a sound nerve, or normal functioning of a degenerated or intoxicated nerve, causes fatigue which may amount to exhaustion, and the power of recuperation may be transiently or permanently lost. Poisons, like alcohol and lead, reduce the recuperating power, and nerves subjected to strain from the occupation may experience exhaustion and ultimate paralysis and atrophy. As a typical example he cites the case of a waiter, addicted to alcohol, who had paresis of the legs which subsided as he changed his occupation. The carrying of heavy loads on his shoulder later was followed by paralysis of the shoulder muscles. Edinger thinks that too little attention has been paid hitherto to the questions, What becomes of a normal nerve subjected to unduly great strain, or of a weak nerve of which normal functioning is demanded? and How does the central organ fare with these absolute or relative overdemands? His view that a constitutional, defective composition of a part leads to atrophy when functional demands are made on it throws light on the most diverse forms of congenital nervous affections. Anatomically they all present the same picture: the non-inflammatory perishing of nerve substance, its place being taken by neuroglia tissue. A similar process occurs in another group of nervous affections which are not congenital but result from the action of poisons, as in the nervous affections after ergot poisoning, after pellagra and, above all, after infection with syphilis, as in tabes and paralysis. All these have an injurious influence even on nerves of which only normal function is demanded. Physical exertion has long been known as affecting the development of tabes; men exposed to physical overexertion develop tabes in larger proportions than others free from physical stress. Particularly instructive in this line are the cases in which tabes affects limbs that are used more than others, or when the first onset is observed after unusual physical exertion. Paralysis develops in syphilities with amazing frequency when life makes great demands on the brain. It is rare, he says, among the home-keeping natives of Switzerland and other countries, while a large proportion of those who have gone to other lands and then returned home developed paralysis. Edinger, therefore, assumes that tabes is a "superposed syndrome" which develops in those infected early, in consequence of functional demands on certain nerve tracts and their early exhaustion therefrom. The typical cases resemble each other so closely only because the symptoms affect nerves which all men have occasion to use about the same. The cases which deviate from this type have generally some special cause—always found if carefully sought for—this cause consisting in special demands on, or special sparing of, these nerve tracts. He regards general paralysis as the result of functional demands on the brain cortex in metasyphilitics. These views have great importance for treatment, and especially for prophylaxis, guarding the patients from all extra demands on their system, from long physiologic retention of urine (to avert paralysis of the bladder), from too intense measures of any kind, courses of mineral waters, etc. Every means should be adopted to spare the patients functional and mental effort of any kind. He has been applying these principles in his practice for some time, and states that the results have been far superior to anything he has previously realized.

101. **Metreurynter for Placenta Prævia.**—Hannes reports from Küstner's clinic at Breslau that in 119 cases of placenta prævia in which the metreurynter was used the mortality was much less than with other technics, and three times as many living children were born as in other clinics in which combined version is the preferred technic. With version the placenta is frequently further detached, and in doing version there is often fatal collision with the umbilical cord—all of which is avoided with the metreurynter. It can be pushed through total placenta prævia and thus arrest the hemorrhage in the simplest and safest manner, while traction on it may promote good rhythmic uterine contractions. It should be the size of a normally large fetal head, for which about 600 c.c. (20 oz.) of fluid are required.

103. **Treatment of Lupus.**—Wichmann reviews the experiences at the Lupus Institute near Hamburg with 263 lupus patients. In 174 of the cases the affection began before the age of 13, and he emphasizes the necessity for systematic treatment at the incipiency. In far too many cases the small initial lupus focus was cauterized and the case dismissed as cured. A few months later, instead of a simple, uncomplicated lupus, the physician had to deal with an extensive cauterization scar sown with lupus nodules, which naturally made effectual treatment a much more difficult matter. He urges that it is actual malpractice to cauterize an initial lupus with acids or the actual cautery. If excision is refused, radiotherapy should be applied; it at least can do no harm in the hands of an expert.

Münchener medizinische Wochenschrift.

July 7, LV, No. 27, pp. 1417-1472.

105 *True Nature of "Alternating" Heart Action. (Wesen des Herzalternans.) H. E. Hering.
106 Importance of Urobilinuria for the Diagnosis of Liver Affections. Fischler.
107 *Treatment of Paralysis by Plastic Operations on Nerves. (Behandlung von Lähmungen mittels Nervenplastik.) H. Spitzy.
108 *Monosymptomatic "Expectation Neurosis." (Erwartungsneurose.) M. Isserlin.
109 History of Origin and Treatment of Hernia of Diaphragm. (Zwerchfellbruch.) W. Koch.
110 Etiology of Deforming Cervical Spondylitis. G. Preiser.

105. **Nature of "Alternating" Heart Action.**—Hering states that this disturbance is the result of a perodically recurring partial asystole. Part of the muscle fibers fail to respond to the stimulus as it arrives. He gives tracings of the pulsus alternans from experimental and clinical research on which he bases these views.

107. **Treatment of Paralysis by Plastic Operations on the Nerves.**—The history of nerve surgery and considerable personal research in this line are related by Spitzy. He says that 57 cases are now on record of cure of facial paralysis by grafting the paralyzed nerve on one of its sound neighbors. His experience has been mostly with peroneal or radial paralysis, and the results after several years are extremely gratifying. One boy of 12 with paralysis from fracture of the upper arm during birth has been cured by central partial implantation of the median nerve in the paralyzed radial. He can now guide a bicycle and play the piano with the injured hand. Spitzy states that surgery of the nerves owes much to Bethe, and that his works on regeneration of severed and sutured nerves should be studied by those interested in this branch of surgery. The literature to date reports fully 90 per cent. cures from primary and secondary suture of nerves.

108. **"Expectation Neurosis."**—Isserlin emphasizes the necessity for differentiating this disorder from other nervous affections. If its nature is misunderstood, all attempts at treatment generally only exaggerate the disturbances. There is only one method of treatment, the systematic influencing of the patient's mind, especially by hypnotic measures. This proves effectual even in the severest cases of this monosymptomatic hysteria. A number of typical examples are related, among them a case of smarting in the eyes, with headache, in an artist, after long reading and painting, until the patient was unable to write or even bear the sunlight after ten years of these disturbances. Recovery was complete after four weeks of treatment by hypnosis. Another patient was a robust man who found that he was unable to write on account of ataxic movements in the right hand. This disturbance had been noted for two years, coming on after overexertion of the arm in fencing. Treatment by suggestion cured the patient permanently in five days. Another patient was a boy of 8 who had a spasmodic cough at every attempt to eat or to

swallow. Weakness of the legs was the trouble in other cases—all these patients were cured by a brief course of suggestion. This class of cases is described by Kraepelin as an "expectation neurosis," a pathologic reaction from the internal tension resulting from the anxious waiting for a given event.

Therapeutische Monatshefte, Berlin.

July, XXII, No. 7, pp. 329-382.

111 *Treatment of Diphtheritic Paralysis. (Diphtherische Lähmungen.) Kohts.
112 *Indications and Principles for Medicinal and Dietetic Treatment of Neurasthenia. (Behandlung der Neurastheniker.) R. Bing.
113 Tasks and Results of Modern Gynecology and Obstetrics. (Erfolge und Aufgaben der modernen Geburtshilfe und Gynäkologie.) P. Kroemer.
114 Scarlet Fever and its Treatment. (Scharlach.) Garlipp.
115 Ocular Tuberculin Reaction. (Ophthalmo-Reaktion und Tuberkulose.) H. Naegeli-Akerblom and P. Vernier.
116 Cholelithiasis and Diabetes Mellitus. M. Hedinger.
117 Veronal in Obstetric Practice. A. Reich and A. Herzfeld (New York).
118 Negative Food Value of Alcohol and its Action as a Specific Nerve Poison. (Der theoretische Nährwert des Alkohols.) M. Kassowitz.
119 Maximum of Elimination of Cresol in the Dog After Administration of Lysol. (Höhe der Kresolausscheidung beim Hunde nach Lysolverabreichung.) R. Friedländer.

111. **Treatment of Diphtheritic Paralysis.**—Kohts gives the particulars of ten cases of postdiphtheria paralysis in which the patients were cured by injections of from 6,000 to 35,000 units of diphtheria antitoxin. In severe paralysis minute doses of strychnin were also injected. The patients were all completely cured in from two to four months.

112. **Treatment of Neurasthenia.**—Bing's long study of this subject emphasizes the three categories of symptoms in neurasthenia: the purely psychic, the subjective disturbances and the objective manifestations, which may range from urticaria, tremor and pulse and blood pressure variations to abnormal secretory conditions in the mucosa of stomach and intestines, etc. The manifold morbid physical phenomena indicate that neurasthenia is a general neurosis in the fullest sense of the term. It is extremely important, however, to convince the patient that these various manifestations are not separate affections, but are all the outcome of a single abnormal condition of the nervous system as a whole. He discusses medicinal and dietetic measures, urging that neurasthenics should eat a little every hour, never letting the stomach be entirely empty. Even when attending to business or work of any kind, the patient can have crackers or figs or dried prunes in his pocket and a tablet of chocolate in his desk and eat a little every hour, drinking a little milk. Milk should be the main reliance. The principal indications for these dietetic regulations are in all cases in which there is a sense of oppression in the head and tendency to vertigo. In many cases of nervous dyspepsia the patients respond in an equally favorable manner to this form of dieting. Arsenic and valerian are favorites with him if drugs are required for neurasthenia. He gives minute doses of the former, keeping it up for months.

Virchows Archiv, Berlin.

CXCIII, No. 1, pp. 1-175.

120 Deformities in the Limbs. (Missbildungen von Extremitäten.) B. Slingenberg.
121 Primary Tumor of Pleura. (Fibro sarcoma myxomatodes pleuræ permagnum.) R. Mehrdorf.
122 Congenital Lipoma and Tail-like Formations in Man. (Kongenitale Lipome und schwanzähnliche Bildungen beim Menschen.) F. Werner.
123 Hyalin Corpuscles in Plasma Cells. (Russellsche Körperchen.) J. Fick.
124 Hemorrhage in the Adrenal Gland. (Nebennierenblutungen.) M. Lissauer.
125 Study of Pigmentation After Prolonged Administration of Silver Preparations. (Argyrie.) S. Dohi.
126 Benign Tonsillar Mycosis. (Pharyngitis ceratosa punctata.) A. M. Januszkiewicz.
127 Liver Glycogen and Structure of Liver Cell. J. Arnold.

Zeitschrift für klinische Medizin, Berlin.

LXV, Nos. 5-6, pp. 353-518. Last indexed June 20, p. 2118.

128 Influence of External Temperature on Experimental Glycosuria. (Einfluss der Aussentemperatur auf experimentelle Glykosurie.) R. Kohler.
129 Systolic Murmur in Simple Aortic Insufficiency. (Systolisches Geräusch bei der reinen Aorten-Insufficienz.) M. Conto.
130 Specificity of Organ Antigens. A. Schütze.
131 *Tabes and Syphilis. (Tabes und Lues.) Id.
132 Respiratory Metabolism of an Obese Man, Fasting and After Eating. (Respiratorische Stoffwechsel eines Fettsüchtigen im nüchternen Zustand und nach Nahrungsaufnahme.) R. Staehelin.
133 Daily Variations in Work of Kidneys on a Constant Diet. (Tägliche Variationen der Nierenleistung bei konstanter Kost.) M. Brauner.
134 Physical and Clinical Study of Râles and Friction Sounds. (Die sog. Rassel- und Reibegeräusche.) Buttersack.
135 Laws Regulating Elimination of Sugar in Diabetes. (Gesetze der Zuckerausscheidung beim Diabetes mellitus.) W. Falta. Id. J. L. Whitney.
136 *"Permeation" Method of Gastrointestinal Diagnosis and Treatment. (Permeation und die Anwendung ihrer Prinzipien zur Untersuchung und Behandlung des Magen-Darmkanals.) G. Scheltema.

131. **Tabes and Syphilis.**—Schütze reports 100 cases of tabes in which the new biologic tests were applied repeatedly. The findings testify, he says, to the great importance of the complement-binding test for the serum diagnosis of syphilis. He regards this as one of the finest fruits of modern research on immunity, which practical medicine will find of inestimable value. In 69 per cent. of all cases of tabes the absence of hemolysis, that is, the positive phenomenon of complement binding, was conspicuous in the test with the serum or cerebrospinal fluid or both.

136. **"Permeation Method" of Gastrointestinal Diagnosis.**—Scheltema announced a few months ago that valuable information and opportunity for treatment could be obtained by using a fine flexible rubber tube with a small weight fastened in the end, this end swallowed like a stomach tube. The tube is from 9 to 18 feet long or longer, and in the course of time the loaded end emerges from the anus. He gives some Roentgen pictures showing the tube in a frog and in a child, and describes his experiences with large animals with partial and complete permeation. It requires from 18 to 60 hours for the loaded end of the tube to pass the pylorus, but it traverses the rest of the route more rapidly. He asserts that this method of permeation makes it possible to examine conditions and apply treatment at any given point in the intestinal canal. Air can be admitted to the spot in case of anaërobic mischief, bacterial toxins can be combated in their nidus, and drugs can be applied exactly at the point at which they are needed, without taxing or injuring other organs.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

PAIN, Its Causation and Diagnostic Significance in Internal Diseases. By Dr. Rudolph Schmidt, Assistant in the Clinic of Hofrat von Neusser, Vienna. Translated and Edited by Karl M. Vogel, M.D., Instructor in Pathology, College of Physicians and Surgeons, Columbia University, and Hans Zinsser, A.M., M.D., Instructor in Bacteriology, College of Physicians and Surgeons, Columbia University. Cloth. Pp. 326, with illustrations. Price, $3.00. Philadelphia: J. B. Lippincott Co.

TRANSACTIONS OF THE ROYAL ACADEMY OF MEDICINE, Ireland. Vol. xxvi. Edited by James Craig, M.D., F.R.C.P.I., Physician to the Meath Hospital and County Dublin Infirmary. Cloth. Pp. 432, with illustrations. Dublin: John Falconer, 1908.

PROCEEDINGS OF THE THIRTY-EIGHTH ANNUAL MEETING OF THE NEW JERSEY PHARMACEUTICAL ASSOCIATION, Held at Atlantic City, N. J., June, 1908. Cloth. Pp. 236, with illustrations. Somerville: Press of the Unionist-Gazette, 1908.

HEALTH AND BEAUTY. By J. V. Shoemaker, LL.D., M.D., Clinical Professor of Diseases of the Skin in the Medico-Chirurgical College of Philadelphia. Cloth. Pp. 476. Price, $3.00. Philadelphia: F. A. Davis Co.

THE AIR AND VENTILATION OF SUBWAYS. By George A. Soper, Ph.D., Member of American Society of Civil Engineers. Cloth. Pp. 244, with illustrations. Price, $2.50. New York: John Wiley & Sons, 1908.

PHARMACEUTICAL PREPARATIONS. Vol. I. By A. Emil Hiss, Ph.G., and Albert E. Ebert, Ph.M., Ph.D. Cloth Pp. 576. Price, $3.00. Chicago: G. P. Engelhard & Co., 1908.

BULLETIN OF THE BUREAU OF LABOR. Department of Commerce and Labor. No. 75—March, 1908. Paper. Pp. 663. Washington: Government Printing Office, 1908.

PRELIMINARY ANNOUNCEMENT OF THE INTERNATIONAL CONGRESS ON TUBERCULOSIS. Washington, D. C., September 21 to October 12, 1908. Paper. Pp. 188.

157TH ANNUAL REPORT OF THE PENNSYLVANIA HOSPITAL. Paper Pp. 119. Philadelphia: J. B. Lippincott Co.